ORDER NO. ARD-907026

NATIONAL Service Manual

SOLID STATE CASSETTE TAPE RECORDER

MODEL RQ-208S

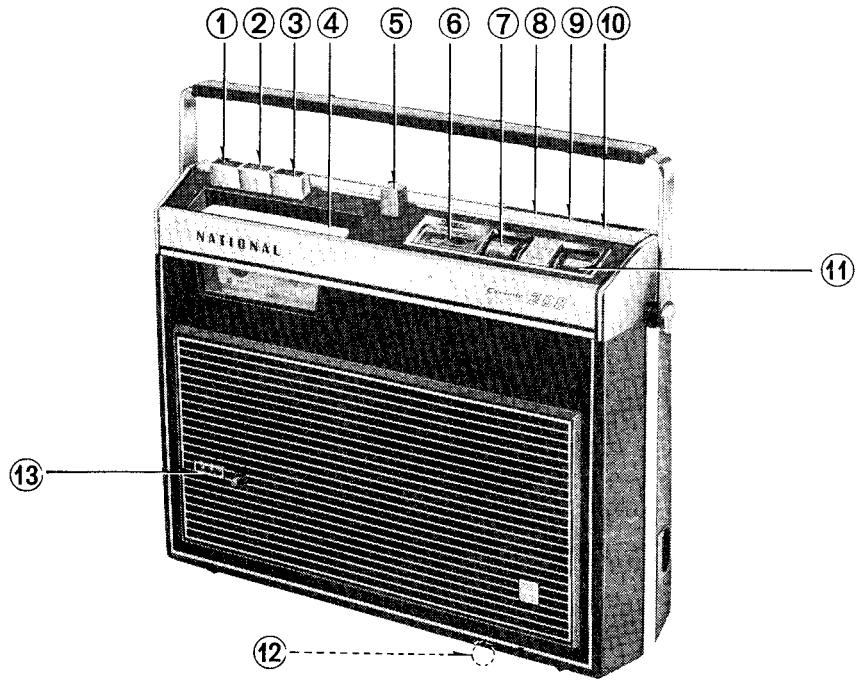
SPECIFICATIONS

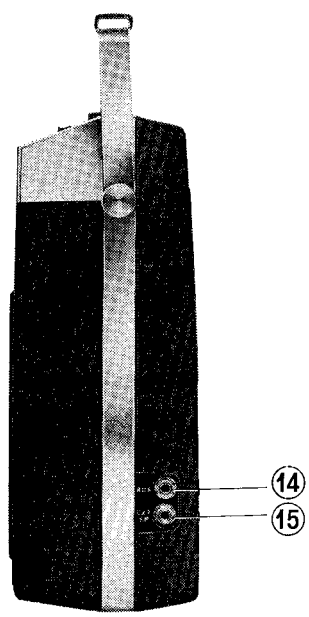
Power Source:	AC: 110, 220, 240 Volts 50/60 Hz DC: 9 Volts (six UM-1 batteries)
Battery Life:	Approx. 15 hrs (with NATIONAL "Hi-Top" batteries)
Power Consumption:	Approx. 6 W
Operation System:	Slide-in and push button
Tape Speed:	1-7/8 ips
Transistors:	2SB 346 (1) 2SB 175 (3) 2SB 324 (4) 2SB 172 (1)
Diodes:	OA 70 (2) OA 81 (1)
Track System:	2 track
Music Power:	3 W
Frequency Response:	50~10,000 Hz
Recording System:	AC bias 35 KHz
Erase System:	AC erase
Fast Forward Time:	Approx. 90 seconds with cassette tape RT-60
Rewind Time:	Approx. 90 seconds with cassette tape RT-60
Built-in Speaker:	4″ dynamic speaker
Inputs:	"MIC" input 0.25 mV 270Ω~ 5 KΩ "AUX" input 0.1V 100 KΩ "EXT DC" input 9V
Output:	"EXT SP" output 1V 8Ω
Dimensions:	11-7/16″(W)×8-7/8″(H)×3-3/8″(D)
Weight:	7-1/4 lbs

<EXPORT DIVISION>
MATSUSHITA ELECTRIC TRADING CO., LTD.
P.O. Box 288, Central, Osaka, Japan

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
AUDIO TAPE RECORDING DEPT.

LOCATION OF PARTS



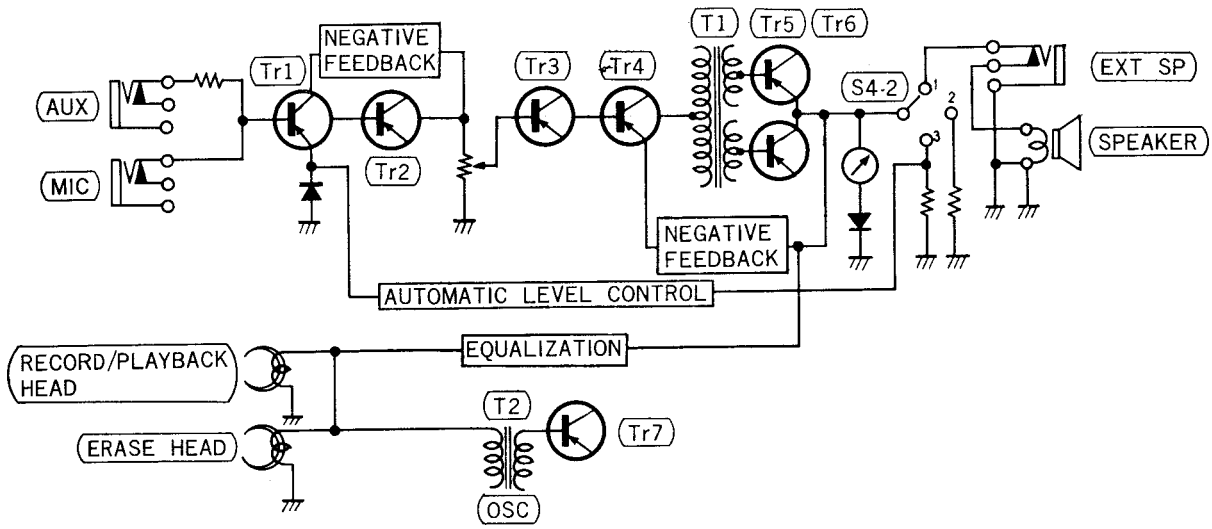


① Rewind Button
② Stop Button
③ Fast Forward Button
④ Tape Slot
⑤ Record Button
⑥ VU Meter
⑦ Tone Control Knob
⑧ Pause Control
⑨ Selector Switch
⑩ MIC Remote Jack
⑪ Volume Control Knob
⑫ Jack for use with Car Bracket
⑬ Tape Counter & Reset Button
⑭ Auxiliary Input Jack
⑮ External Speaker Jack

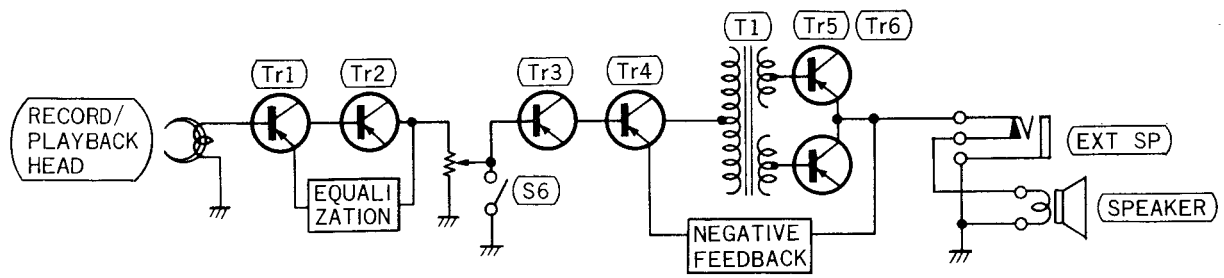
Fig. 1

BLOCK DIAGRAM OF ELECTRICAL CIRCUITS

RECORDING CIRCUIT



PLAYBACK CIRCUIT



MOTOR AUTO POP UP & POWER SOURCE CIRCUIT

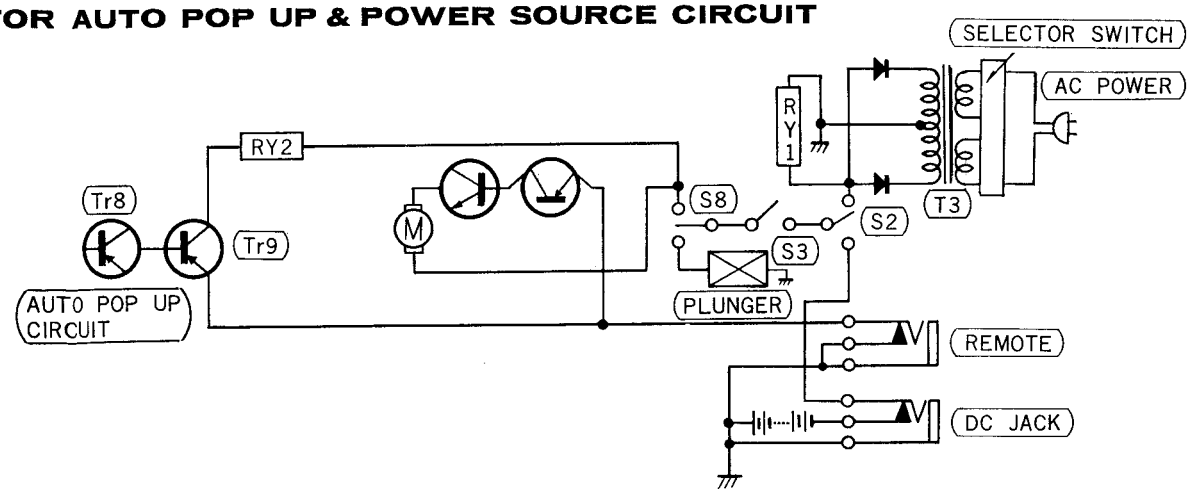


Fig. 2

DISASSEMBLY INSTRUCTIONS

REMOVING THE BOTTOM CASE

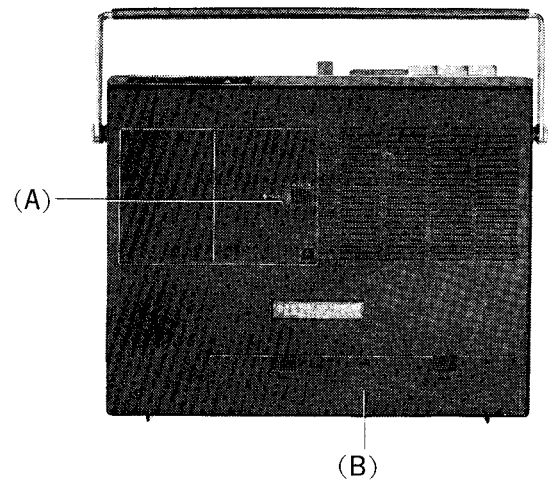


Fig. 3

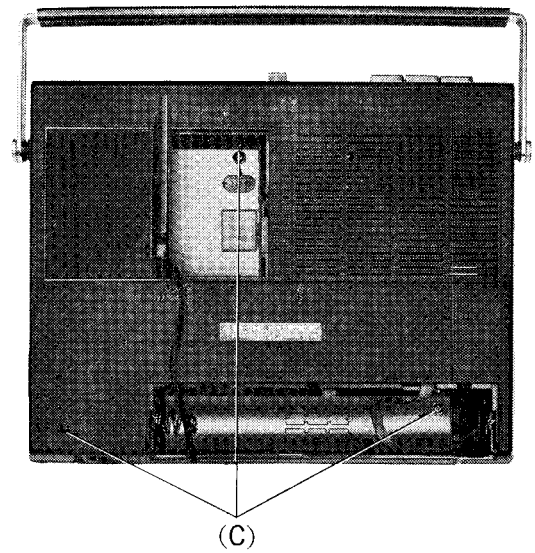


Fig. 4

1. Open the Power Cord Compartment Lid (A).
2. Take off the Battery Cover (B).
3. Remove 3 Bottom Case Holding Screws (C).
4. Then the Bottom Case can be removed.

REMOVING THE CHASSIS

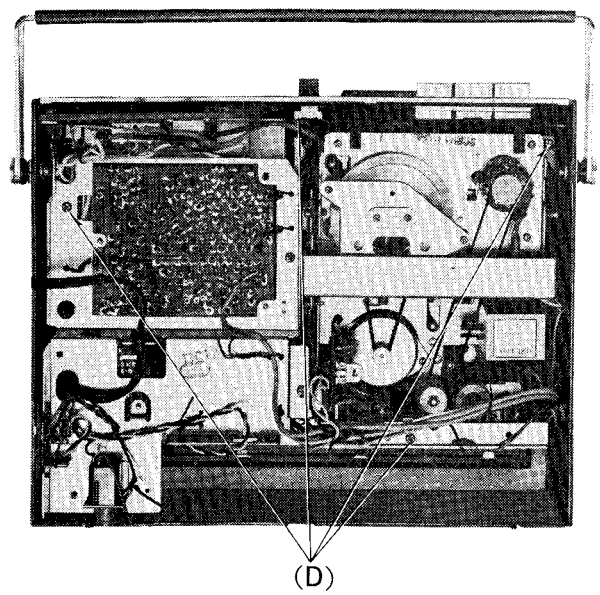


Fig. 5

1. Remove 4 Chassis Holding Screws (D).
2. Then the Chassis can be removed.

MECHANICAL ADJUSTMENTS

PRESSURE ROLLER ADJUSTMENT

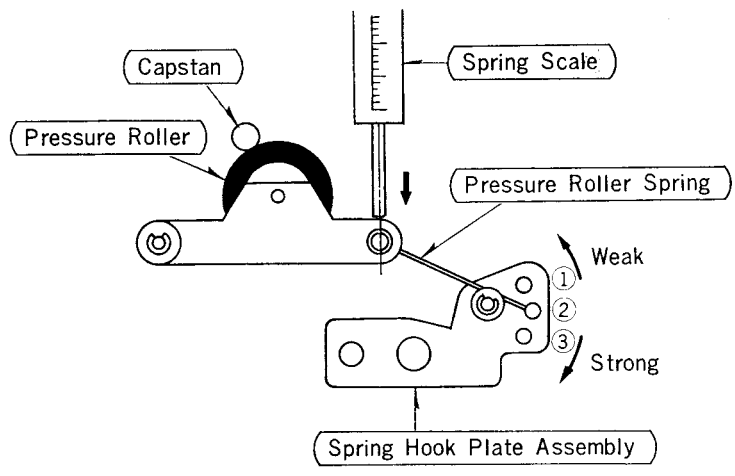


Fig. 6

1. Place the set into the PLAYBACK mode.
2. Hook a spring balance as shown in the figure and Push it in the arrow direction.
3. Measure the value at the moment when the Pressure Roller comes off from the Capstan.
4. The standard pressure of the Pressure Roller is 260 ~340 gr.
5. If the measured value be outside the specified range, change the hooking position of the Pressure Roller Spring to either Hole ① or ③ so that pressure of the Pressure Roller becomes 260~340 gr.

TAKEUP TORQUE ADJUSTMENT

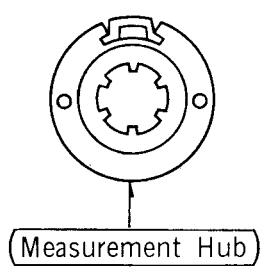


Fig. 7

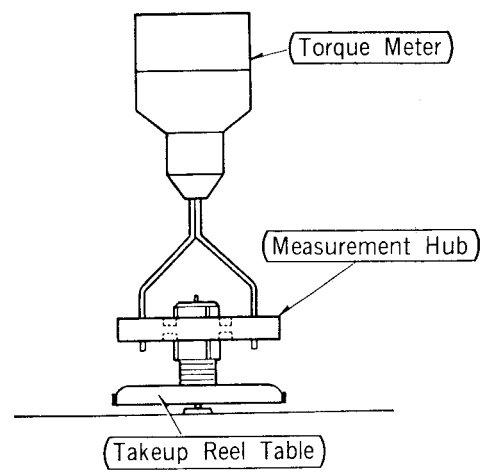


Fig. 8

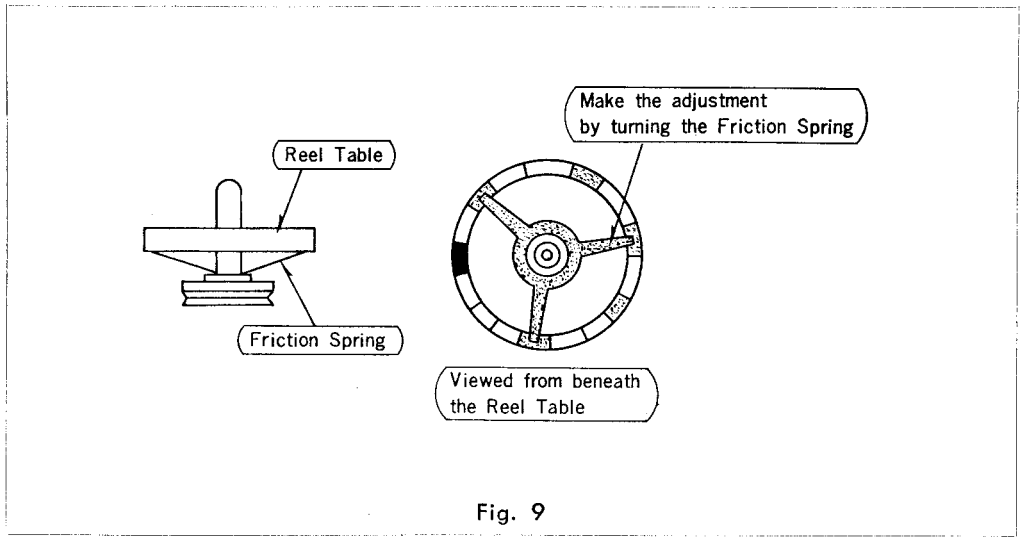


Fig. 9

Instruments Required: Torque Meter (having a range of 20~100 gr-cm)
Measurement Hub (Take out the Table part of the Cassette Tape, perforate 2 holes vertically to the frame, and fix it to the Torque Meter by using a wire.)

1. Place the set in the PLAYBACK mode, and put the Measurement Hub with the Torque Meter into the Takeup Reel Table.
2. The rotational torque of the Takeup Reel Table is transmitted to the torque meter and the torque meter indication gets constant. When the Takeup Reel Table stops running, read the torque meter.
3. The standard Takeup Tension of the Takeup Reel Table is 30~65 gr-cm.
4. Torque increases when the Friction Spring on the lower side of the Reel Table is turned to right, and reduces when the Friction Spring is turned to left. (see Fig. 9)

R/P HEAD ANGLE ADJUSTMENT

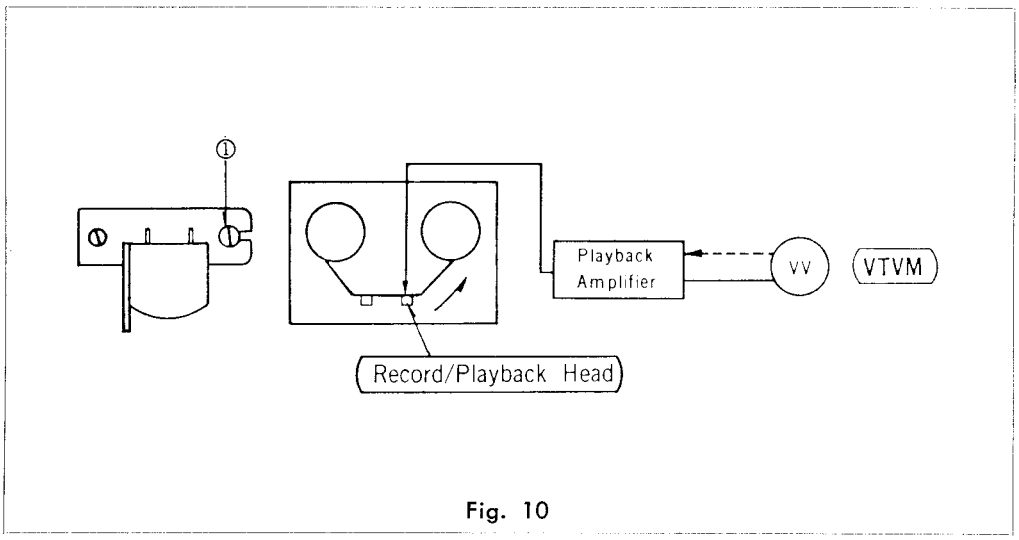


Fig. 10

Instruments Required: VTVM, Standard Tape for 3KHz (at 1-7/8 ips) Angle Adjustment (or Tape on which recording is made by a reliable tape recorder).

Connect wires as shown in Fig. 10, thread the Tape and place the tape recorder into the playback mode. Turn either of the Angle Adjustment Screws ① in Fig. 10 by a 1/4 turn, and make the adjustment so that the reading on the VTVM connected to the Line Out becomes maximum.

AMPLIFIER ADJUSTMENTS

ERASE CURRENT

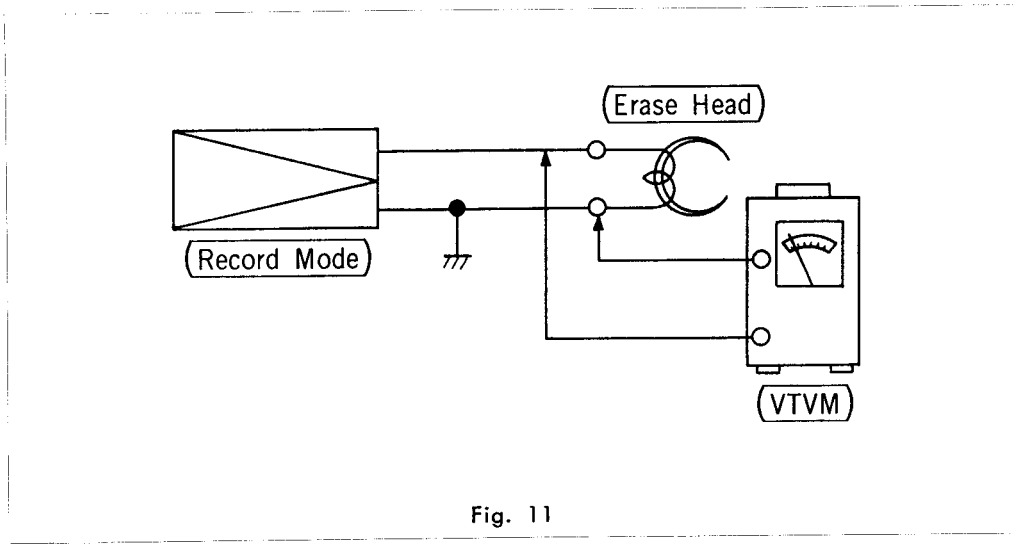


Fig. 11

1. Connect VTVM to Erase Head and measure the voltage value.
2. Standard Erase Voltage—8.5 V is above.

RECORD BIAS CURRENT ADJUSTMENT

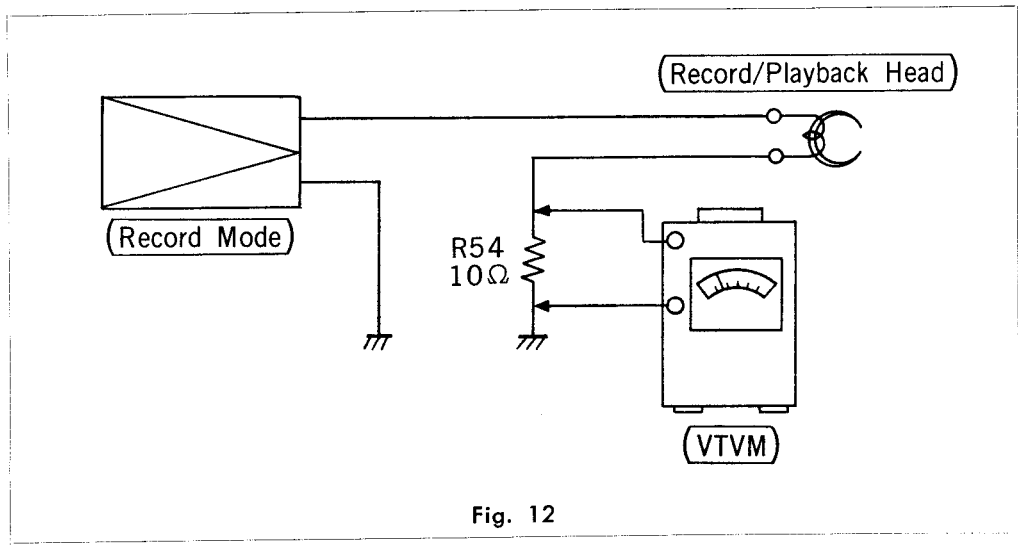


Fig. 12

Instruments Required: VTVM, AF OSC, ATT.
Measuring Circuit: Refer to Fig. 12.

Measuring Method:

1. Connect the ground side Terminal of the Recording Head to the input terminal of VTVM.
2. Place the set into the RECORD mode, and measure the Bias Current supplied to the Record Head by using the VTVM. At this time, keep the Record Level Control at the minimum.
3. The standard Bias Current is 0.45±0.05 mA. If the Current Value is beyond the limits, the value can be kept in the range by adjust the Coil L2.

RECORDING LEVEL

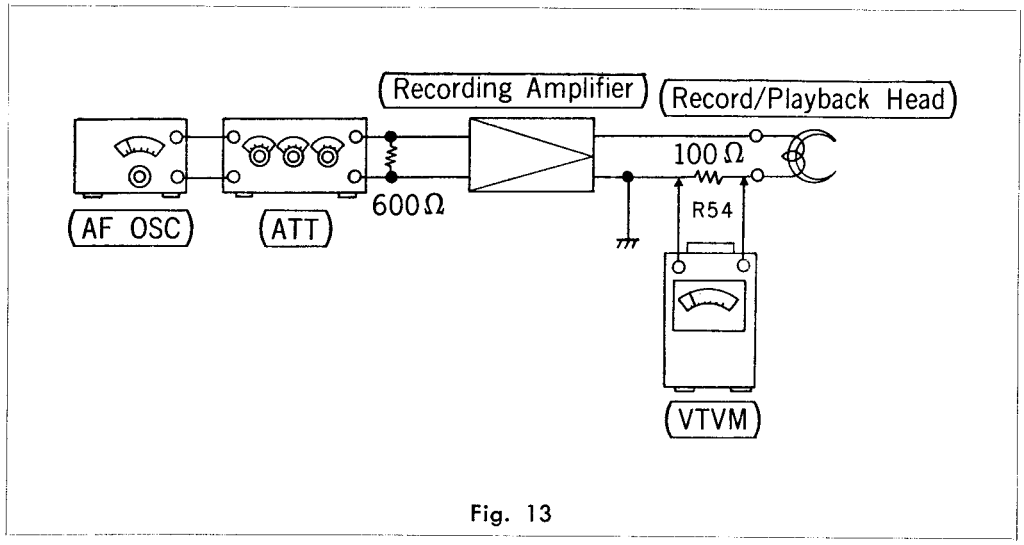


Fig. 13

Instruments Required: AF Oscillator; Attenuator; VTVM; 600Ω resistors.
Measuring Circuit: Refer to Fig. 13.

Set the Tape Recorder in Record mode. Measure the recording level necessary to feed 0.05 mA to the Record Head from the input jack. Adjust the attenuator so that the voltage across the resistor R41 is maintained at 0.5 mV, and confirm if its value is shown as followings.

NOTE: Keep bias oscillation at a stop.

MIC input jack: −70∼−64 db.

PLAYBACK GAIN ADJUSTMENT

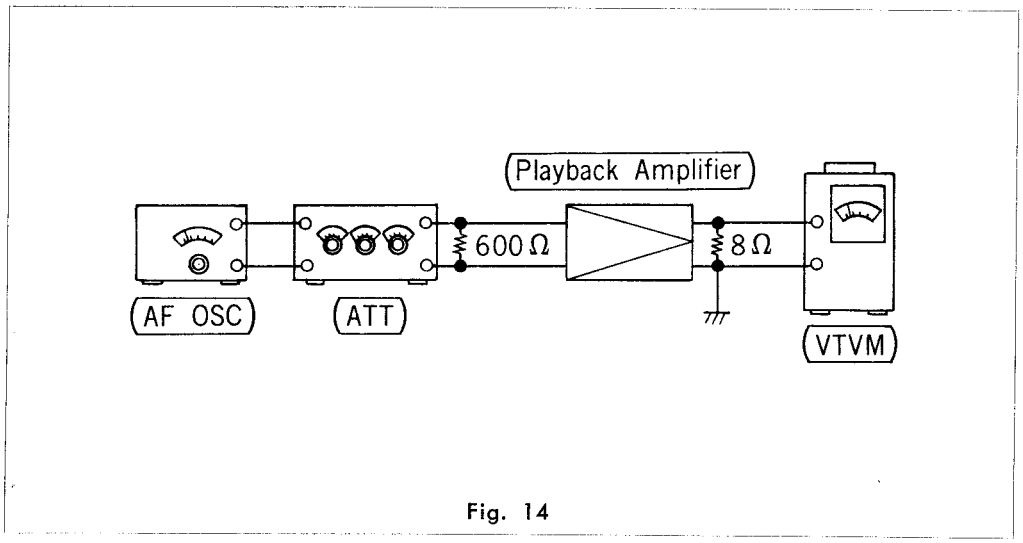


Fig. 14

Instruments Required: VTVM, AF OSC, ATT.
Measuring Circuit: Refer to Fig. 14.

Measuring Method:

1. Supply the input signal of 1 KHz −82∼−76 db to the Terminal of the playback Head.
2. Place the set into the PLAYBACK mode, and keep the Playback Volume Control at the maximum.
3. By using VTVM, measure both ends of 8Ω Dummy Resistor connected to the Speaker Terminal.
4. The standard voltage value is 1 V.

REPLACEMENT PARTS LIST

Before you give us an order for parts, please read the following instructions without fail.

1. Parts written in gothic in this Replacement Parts List are always kept in stock in our department, and can therefore be shipped earlier than other parts.
2. Parts written in slender letters are not kept in stock, and will therefore be shipped later. So place an order for them separately.
3. Disassembled parts of Sub Assembly are respectively given a suffix to the Ref. No.
4. Parts other than the above are not available from us.

LISTA DE PIEZAS DE RBPUESTO

Antes de hacernos un peaido de piezas, dígnese leer sin falta las instrucciones siguientes:

1. De las piezas cuyos nombres aparecen escritos con letras góticas en esta Lista de Piezas de Repuesto, tenemos surtido en nuestro departamento, y por lo tanto, podemos enviarlas antes que otras.
2. De las escritas con letras más finas, no tenemos surtido, por lo que su envío se retardará. Por eso, haga el favor de hacer por separado los pedidos.
3. Las piezas demontadas del Sub Assembly llevan respectivamente un sufijo a la Referencia No.
4. No podemos proveer de piezas no mencionadas arriba.

LISTE DES PIÈCES DE RECHANGE

Avant de nous commander des pièces, veuillez lire sans faute les instructions suivantes:

1. Les pièces écrites en grosses lettres dans cette Liste de rechange sont toujours en magasin dans notre section, et pourront donc s'expédier plus vite que les autres pièces.
2. Les pièces écrites en minces lettres ne sont pas en magasin, et s'expédieront plus tard. Passez-nous donc séparément votre commande pour elles.
3. Les pièces désassemblées du Sub Assembly ont chacune un suffixe au Ref. No.
4. D'autres pièces que celles montrées ci-dessus ne sont pas disponibles chez nous.

ERSATZTEILELISTE

Bitte lesen Sie die folgende Anweisung sorgfältig, bevor Sie die Bestellung auf unsere Ersatzteile geben.

1. Die Ersatzteile, die in dieser Liste mit der fetten Schrift geschrieben sind, sind immer in unserer Abtailung als Vorrat befindlich, und sind daher schneller zu liefern als andere Taile.
2. Die Ersatzteile in der dünnen Schrift sind nicht vorrätig und brauchen deshalb einiger Zeit bis zur Lieferung. Bitte geben Sie daher die Bestellung separat für solche Teile.
3. Demontierte Teile der Uterbaugruppe sind je mit Nachsilbe nach dem Referenznummer versehen.
4. Andere Ersatzteile als die obigen sind nicht von uns zu lifefern.

替 換 零 件 名 單

承蒙訂購零件之前、敬請閱読下列各項.

1. 本名單中用粗字體填記的零件、經常儲存於本公司事業部、因此能比他品更快地發貨。
2. 用細字體記載的零件、仅有存件、所以發貨时期较仅。敬請另行訂購。
3. 局部裝配組析卸的各零件、則在查詢號碼之後附有接尾字。
4. 本名單没有記載的零件、則不能供應。

RESISTORS

Ref. No.	Description			Part No.
R1	Carbon Resistor	100 KΩ	1/4 W	ERD14VJ104
R2	Carbon Resistor	270Ω	1/4 W	ERD14VJ271
R3	Carbon Resistor	3.3 KΩ	1/4 W	ERD14TJ332
R4, 24	Carbon Resistor	18 KΩ	1/4 W	ERD14VJ183
R5, 9	Carbon Resistor	2.2 KΩ	1/4 W	ERD14VJ222
R6, 13	Carbon Resistor	6.8 KΩ	1/4 W	ERD14VJ682
R7	Carbon Resistor	33 KΩ	1/4 W	ERD14TJ333
R8, 47	Carbon Resistor	3.9 KΩ	1/4 W	ERD14VJ392
R10, 20, 22, 45	Carbon Resistor	47Ω	1/4 W	ERD14VJ470
R11	Carbon Resistor	4.7 KΩ	1/4 W	ERD14VJ472
R12	Carbon Resistor	5.6 KΩ	1/4 W	ERD14VJ562
R14, 18	Carbon Resistor	1 KΩ	1/4 W	ERD14VJ102
R15	Carbon Resistor	68Ω	1/4 W	ERD14VJ680
R16	Carbon Resistor	10 KΩ	1/4 W	ERD14VJ103
R17	Carbon Resistor	27 KΩ	1/4 W	ERD14VJ273
R19, 44	Carbon Resistor	2.7 KΩ	1/4 W	ERD14VJ272
R21, 23	Carbon Resistor	3.3 KΩ	1/4 W	ERD14VJ332
R25	Carbon Resistor	390Ω	1/4 W	ERD14VJ391
R27	Carbon Resistor	270Ω	1/4 W	ERD14TJ271
R28, 30	Carbon Resistor	15Ω	1/4 W	ERD14VJ150
R29	Carbon Resistor	220Ω	1/4 W	ERD14VJ221
R31	Carbon Resistor	180Ω	1/4 W	ERD14VJ181
R32, 48, 52 ...	Carbon Resistor	10Ω	1/4 W	ERD14VJ100
R33, 34	Wire-wound Resistor	0.047Ω		ERM12PKR47
R35	Carbon Resistor	25 KΩ	1/4 W	ERD14TJ253
R36	Carbon Resistor	1 KΩ	1/4 W	ERD14TJ102
R37, 38	Carbon Resistor	820Ω	1/4 W	ERD14VJ821
R39, 40	Solid Resistor	10Ω	1/2 W	ERD12GK100
R42	Carbon Resistor	22 KΩ	1/4 W	ERD14VJ223
R43	Carbon Resistor	560Ω	1/4 W	ERD14VJ561
R46	Carbon Resistor	680Ω	1/4 W	ERD14VJ681
R49	Carbon Resistor	15 KΩ	1/4 W	ERD14VJ153
R50	Carbon Resistor	8.2 KΩ	1/4 W	ERD14VJ822
R51	Carbon Resistor	1.5 KΩ	1/4 W	ERD14VJ152
R53	Carbon Resistor	100Ω	1/4 W	ERD14VJ101
R54	Carbon Resistor	10Ω	1/4 W	ERD14TJ100

VARIABLE RESISTORS

Ref. No.	Description		Part No.
VR1	Variable Resistor	5 KΩ (C)	EVHB0AL20C53
VR2	Variable Resistor	10 KΩ (C)	EVHB0AL200C14

CAPACITORS

C1, 3	Electrolytic Capacitor	10μF	ECEA6V10N
C2, 11	Electrolytic Capacitor	33μF	ECEA6V33N
C4, 9, 10, 14	Electrolytic Capacitor	3.3μF	ECEA16V3R3N
C5	Mylar Capacitor	0.033μF	ECQM05333KZ
C6	Mylar Capacitor	0.0015μF	ECQM05152KZ
C7	Mylar Capacitor	0.001μF	ECQM05102KZ
C8, 32, 34, 35	Electrolytic Capacitor	100μF	ECEA10V100N
C12	Aluminum Capacitor	0.47μF	ECAG25E0R47
C13	Aluminum Capacitor	0.1μF	ECAG25E0R1
C15	Electrolytic Capacitor	100μF	ECEA6V100N
C17	Electrolytic Capacitor	470μF	ECEA10V470N
C18	Electrolytic Capacitor	1000μF	ECEA10V1000N
C19	Mylar Capacitor	0.01μF	ECQM05682MZ
C20	Electrolytic Capacitor	1000μF	ECEA6V1000N
C21	Aluminume Capacitor	1μF	ECAG10E1
C23	Mylar Capacitor	0.0022μF	ECQM05222MZ
C24, 25	Electrolytic Capacitor	220μF	ECEA6V220N
C26	Styrol Capacitor	390 pF	ECQS02391KZ
C27	Electrolytic Capacitor	1000μF	ECEA16V1000N
C28	Mylar Capacitor	0.015μF	ECQM05153MZ
C29	Mylar Capacitor	0.022μF	ECQM05223MZ
C30	Styrol Capacitor	0.0018μF	ECQS2391KZ
C31	Mylar Capacitor	0.056μF	ECQM05563KZ
C33	Mylar Capacitor	0.1μF	ECQM05104KZ
C36	Electrolytic Capacitor	33μF	ECEA16V33
C37	Mylar Capacitor	0.0056μF	ECQM05562MZ

TRANSISTORS

Tr1	Transistor	2SB346
Tr2, 3, 4	Transistor	2SB175B
Tr5, 6, 7, 8	Transistor	2SB324 (G.H.I.J.K.L)
Tr9	Transistor	2SB172A

DIODES & RECTIFIER

D1	Diode	OA81
D2, 3	Diode	OA70
D5	Silicon Rectifier	1S1850R

THERMISTOR

TH1, 2	Thermistor	QVM300A

TRANSFORMERS & COIL

T1	Input Transformer	QLA0123
T2	Oscillator Transformer	QLB0137
T3	Power Transformer with AC Cord	QLP0471
L1	High Frequency Choke Coil	ELT10S921

SWITCHES

S1	Record/Playback Selector Switch	QSS1075S
S2	AC/DC Selector Switch (Relay)	QSK0114
S3	Power Switch	QSB0145
S4	Sound Monitor Switch	QSS1081
S5	Motor ON/OFF Switch	QSS1080
S6	Stop Switch	QSB0145
S7	AC Voltage Selector Switch	QSS1061
S8	Relay	QSK0117

ELECTRICAL PARTS

E1	Record/Playback Head	WY028Z
E2	Erase Head	WY223Y
E3	VU Meter	QSL0049A

Ref. No.	Description	Part No.
E4	**Speaker**	**EAS10P70S**
E5	**Remote Jack**	**QJA0413**
E6	**M3 Jack**	**QJA0112**
E7	**Jack for Car Bracket**	**QJA0221**
E8	**Cord Bushing**	**QTD1126A**
E9	**Jack Plate**	**QGJ1122**
E10	**Volume Knob Assembly**	**QYT0106**
E11	**Tone Control Knob Assembly**	**QYT0107**
E12	**Lug Terminal**	**QJT0015**
E13	**Cord Cramp**	**QTD1002**
E14	**Record Operation Lever**	**QML1698**
E15	**Slide Switch Spring**	**QBP1144**
E16	**Record Lever Guide**	**QMP1101**
E17	**Record Spring**	**QBT1366**
E18	**AC Power Cord**	**QFC1041**

MECHANICAL PARTS

M1	**Tape Counter**	**QDC0033**
M2	Tape Counter Holding Plate	QMH1092S
M3	Lead Wire Cramper	QMH1093
M4	**Spring Washer SW3ϕ**	**XWA3B**
M5	**Screw ⊕3×6**	**XSN3+65**
M6	**Screw ⊕2.6×6**	**QHQ1132**
M7	**Stop Ring E3ϕ**	**XUC3FK**
M8	**Head Slide Lever Spring**	**QBN1092**
M9	**Fiber Washer 4.2×6×1**	**QBK7128**
M10	**Ball Pressure Spring**	**QBP1192**
M11	**Spring Retainer**	**QMF1313**
M12	**Head Slide Lever**	**QML1685**
M13	**Vinyl Tube**	**QLT030V×07**
M14	**Steel Ball 3ϕ**	**QDK1006**
M15	**Fast Forward Lever Spring-2**	**QBT1395**
M16	**Lead Wire Cramper-B**	**QMH1094**
M17	**Screw ⊕2×6**	**XSN2+6**
M18	**Screw ⊕2×8**	**XSN2+8**
M19	**Erase Head Spacer**	**QMF1314**

Ref. No.	Description	Part No.
M20	**Flat Washer 2ϕ**	**XWG2**
M21	**Head Adjustment Spring**	**QBC1127**
M22	**Record/Playback Head Spacer**	**QMP1202**
M23	Head Holding Plate	QMF1320
M24	**Stop Ring E1.5ϕ**	**XUC15FK**
M25	**Washer**	**QBJK0015**
M26	**Pressure Roller Assembly**	**QXP0198**
M27	Stop Ring E3ϕ	XUC3FK
M28	**Record Cooperation Lever-1 Assembly**	**QXL0292**
M29	Fast Forward Cooperation Lever-2 Assembly	QMF1316
M30	**Stop Ring E2ϕ**	**XUC2FK**
M31	**Fiber Washer 3.2×9×1**	**QBK7126**
M32	**Fiber Washer 3.2×9×0.5**	**QBK7124**
M33	**Pressure Roller Spring**	**QBN1091**
M34	**Tapping Screw ⊕2.6×6**	**XTB26+6**
M35	Spring Hook Plate Assembly	QXH0055
M36	Base Plate Moving Lever Left Assembly	QXL0293
M37	Stop Ring E3ϕ	XUC3FK
M38	Base Plate Fixing Lever	QML1588
M39	**Base Plate Fixing Lever Spring**	**QQN1068**
M40	Base Plate Moving Lever Right Assembly	QXL0294
M41	**Screw ⊕2.6×20**	**XSN26+20**
M42	**Stop Spring**	**QBT1398M**
M43	**Lug Terminal**	**QJT0015**
M44	**Cassette Guide-2**	**QBJ3078**
M45	**Cassette Guide-1**	**QBJ3077**
M46	Stop Ring E1.5ϕ	XUC15FK
M47	**Cassette Lid Spring**	**QBN1096**
M48	Cassette Lid Shaft	QMS1555
M49	**Cassette Lid**	**QML1697**
M50	Reinforce Plate-1	QMA1343
M51	**Pole**	**QMP1188**
M52	Record Button Lever-2 Assembly	QXL0289
M53	Stop Ring E3ϕ	XUC3FK
M54	**Record Button Lever-1 Assembly**	**QXL0286**
M55	**Record Button Lever Spring-1**	**QBT1375M**

Ref. No.	Description	Part No.
M56	***Nut N2.6φ***	**XSN26E**
M57	**Spring Washer SW2.6φ**	**XWA3B**
M58	Spring Hanger	QMA1341
M59	**Record Lock Spring**	**QBN1095**
M60	Record Lock Lever	QML1684
M61	**Screw ⊕2.6×14**	**XSN26+14**
M62	Spring Washer SW2.6φ	XWA26B
M63	**Flat Washer 3φ**	**XWG3**
M64	**Guide Ring-2**	**QMP1207**
M65	**Screw ⊕3×10**	**XSN3+10S**
M66	Spring Washer SW3φ	XWA3B
M67	Flat Washer 3φ	XWG3
M68	**Pipe-3**	**QMP1147**
M70	Reinforce Plate-2	QMA1344S
M71	**Tapping Screw ⊕3×8**	**XTB3+8**
M72	Stop Ring E3φ	XUC3FK
M73	**Fiber Washer 4.2×9×0.5**	**QBK7005**
M74	Rewind Lever-2 Assembly	QXL0290
M75	Stop Ring E2φ	XUC3FK
M76	Fiber Washer 3.2×9×0.5	QBK7124
M77	Fast Forward Cooperation Lever Assembly	QXL0291
M78	Takeup Release Lever	QML1680
M79	**Stop Lever**	**QML1683**
M80	**Rewind Lever Spring-1**	**QBT1376M**
M81	Slide Plate Assembly	QXL0298
M82	Fiber Washer 3.2×9×1	QBK7126
M83	**Rewind Button Lever Assembly**	**QXL0285**
M84	**Stop Button Lever Assembly**	**QXL0287**
M85	**Fast Forward Button Lever Assembly**	**QXL0288**
M86	Stop Ring E2φ	XUC2FK
M87	**Lock Roller**	**QBJ1404**
M88	Lock Lever	QML1696
M89	**Lock Lever Spring**	**QBC1133**
M90	Stop Ring E3φ	XUC3FK
M91	Fiber Washer 4.2×9×0.5	QBK7005
M92	**Takeup Lever**	**QBJ3080**
M93	**Takeup Idler Rod Assembly**	**QXM0053**

Ref. No.	Description	Part No.
M93-1	Stop Ring E2φ	XUC2FK
M93-2	**Washer-3**	**QBJ3099**
M93-3	**Idler**	**QXI0031**
M94	**Takeup Idler Spring**	**QBT1374**
M95	**Cassette Pressure Pin**	**QYQ0107**
M96	**Cassette Pressure Spring**	**QBC1119**
M97	Stop Ring E1.5φ	XUC15FK
M98	Screw ⊕3×6	XSN3+6S
M99	Spring Washer SW3φ	XWA3B
M100	Stop Ring E2φ	XUC2FK
M101	Washer-3	QBJ3099
M102	**Connection Pulley**	**QBJ3091**
M103	**Tape Counter Belt-2**	**QDB0110**
M104	**Tape Counter Belt-3**	**QDB0111**
M105	Tapping Screw ⊕2.6×6	XTB26+6
M106	**Motor Assembly**	**QDM0936**
M107	**Motor Pulley Assembly**	**QXP0265**
M107-1	**Screw ⊕2.6×4**	**XSN26+4**
M108	**Capstan Belt**	**QDB0107**
M109	Stop Ring E3φ	XUC3FK
M110	**Fiber Washer 4.2×12×0.5**	**QBK7004**
M111	**Fast Forward Lever Spring**	**QBN1101**
M112	Fast Forward Lever-1	QBJ3079
M113	Stop Ring E1.5φ	XUC15FK
M114	Stop Ring E2φ	XUC2FK
M115	Washer-3	QBJ3099
M116	**Idler Assembly**	**QXI0031**
M117	**Fast Forward Lever-2 Assembly**	**QXL0295**
M118	Tapping Screw ⊕2.6×6	XTB26+6
M119	Flywheel Metal Retainer	QMF1317
M120	**Steel Ball 3φ**	**QDK1006**
M121	Flywheel Metal	QBJ3082
M122	**Flywheel Retainer Assembly**	**QXH0056**
M123	Screw ⊕2.6×6	QHQ1125
M124	**Flywheel Assembly**	**QXF0047**
M125	**Washer-2**	**QBJ3098**
M126	**Oil Ceal**	**QBJ3104**

Ref. No.	Description	Part No.
M128	**Plunger**	**QME0119S**
M129	Stop Ring E2ϕ	XUC2FK
M130	Washer (2)	QBJ3099
M131	Rewind Pulley	QBJ3089
M132	**Rewind Lever Assembly**	**QXL0290**
M133	**Rewind Roller Spring**	**QBT1391**
M134	**Rewind Belt**	**QDB0108**
M135	Stop Ring E1.5ϕ	XUC15FK
M136	Washer	QBJK0015
M137	**Supply Reel Table Assembly**	**QXP0263**
M138	**Fiber Washer 2.2×6×0.5**	**QBK7111**
M139	**Takeup Reel Table Assembly**	**QXP0262**
M140	**Tape Counter Belt-1**	**QDB0109**
M141	**Rubber Cushion**	**QBG1147**
M142	Reel Table Base Plate Assembly	QXK1142
M143	**Rotation Switch Assembly**	**QES1089**
M144	Screw ⊕2×8	XSN2+8

CABINET PARTS

G1	**Main Body Case Assembly**	**QYB0177**
G1-1	**Handle Assembly**	**QYH0022**
G2	**Bottom Case Assembly**	**QYC0091**
G2-1	**Battery Spring**	**QJB0016**
G2-2	**Battery Terminal (+)**	**QJB0042**
G3	**Battery Cover Assembly**	**QYF0059**
G4	**Screw ⊕PH3×8**	**XSN3+8RS**
G5	**Screw ⊕PH3×25**	**XSN3+25BVS**
G6	**Screw ⊕PH3×10**	**XSN3+10S**

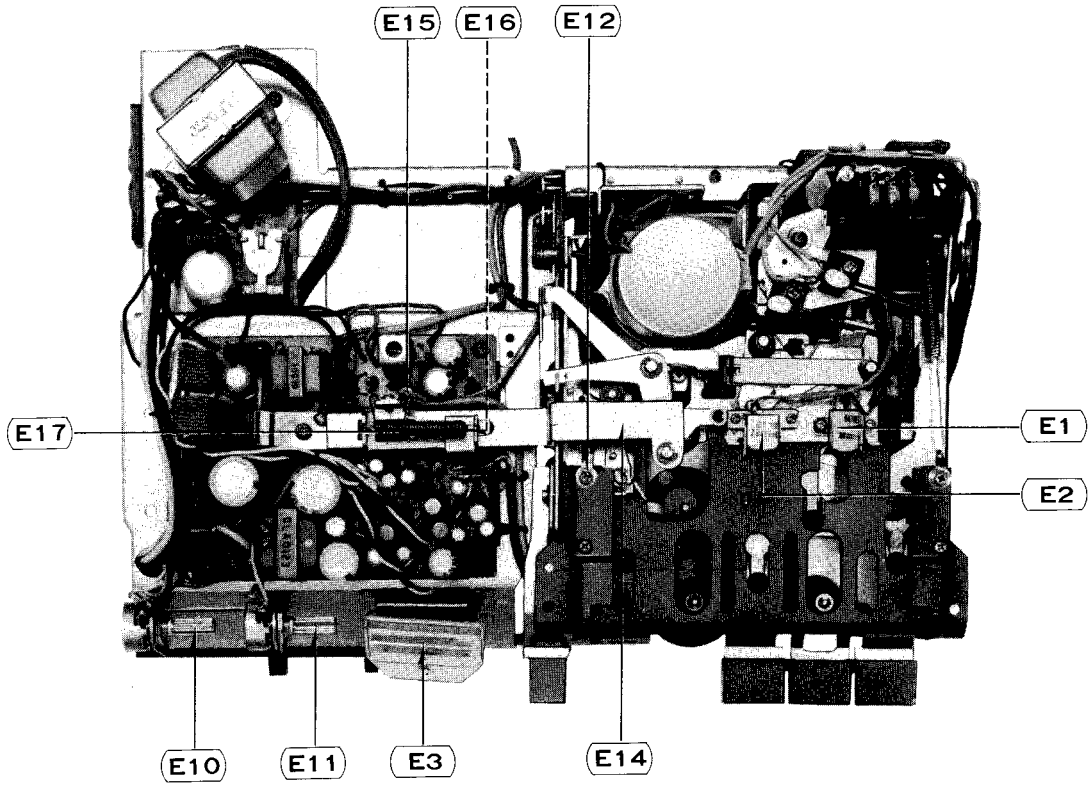
ACCESSORIES

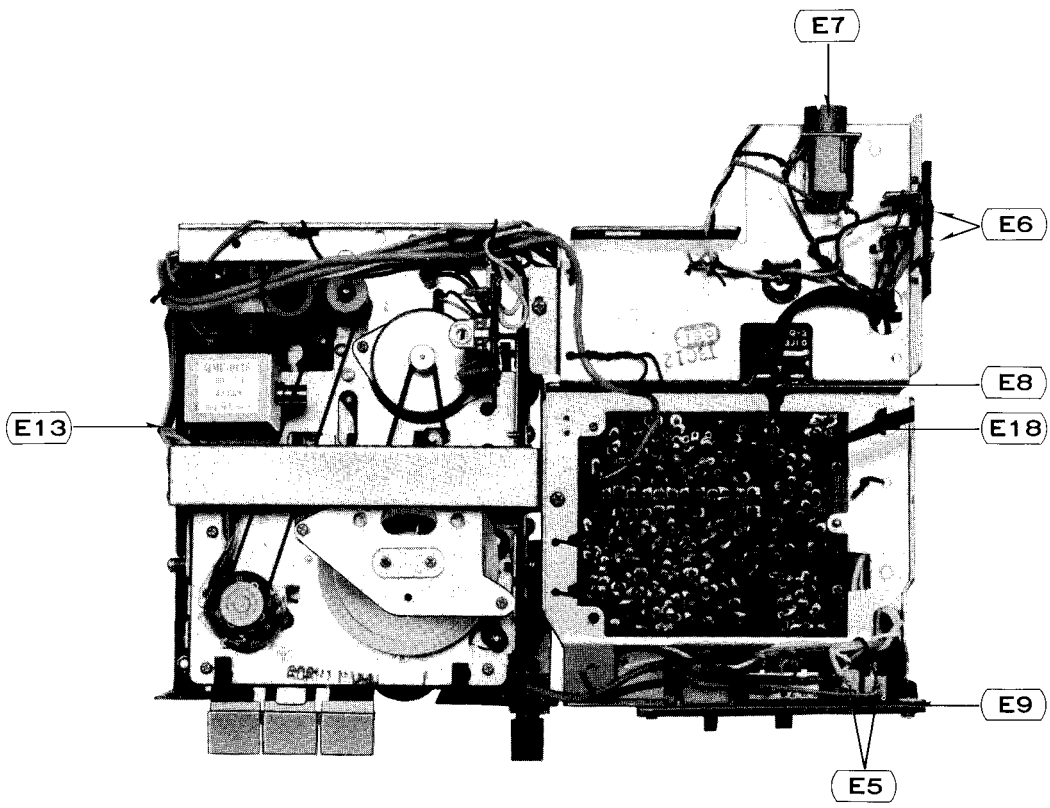
A1	**Dynamic Microphone**	**WM2213N**
A2	**Microphone Stand**	**WN123N**
A3	**Cassete Tape**	**QFT10SSNR90Z**
A4	**Radio Cord-R**	**QEB17P**
A5	**Earphone**	**EAE2SB1**
A6	**Plug Adaptor-B**	**QJP0601**
A7	**Instruction Book**	**QQT1187**

PACKINGS

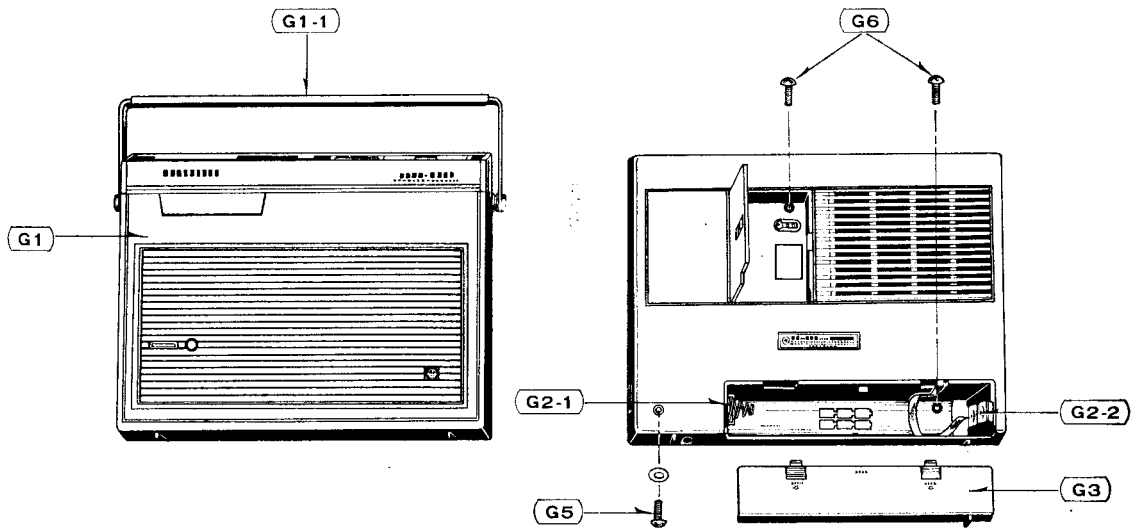
P1	**Inner Packing**	**QPN1911**
P2	Inner Cushion-A	QPN1887
P3	Inner Cushion-B	QPN1888
P4	Accessory Box	QPN1912
P5	Dust Cover	QFD0108

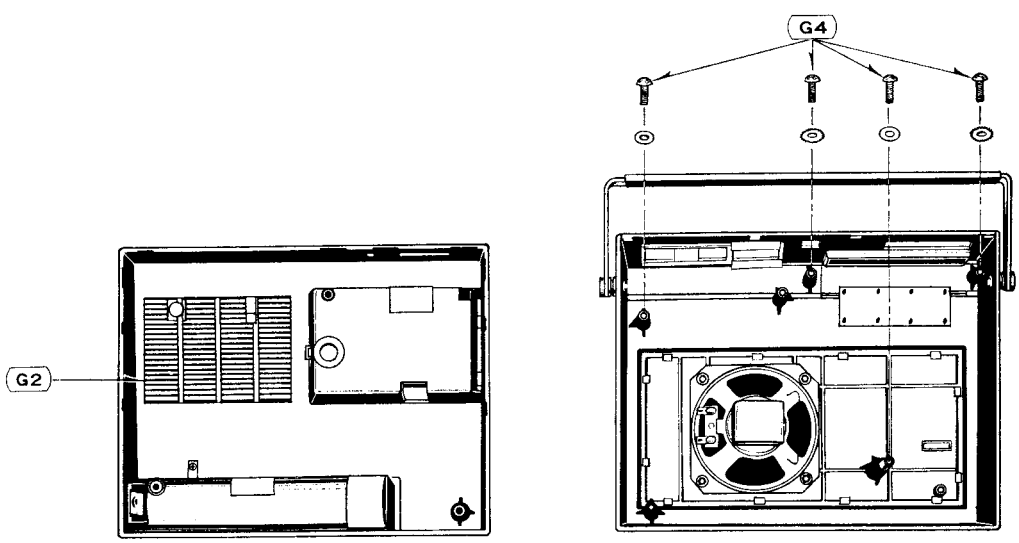
ELECTRICAL PARTS LOCATION





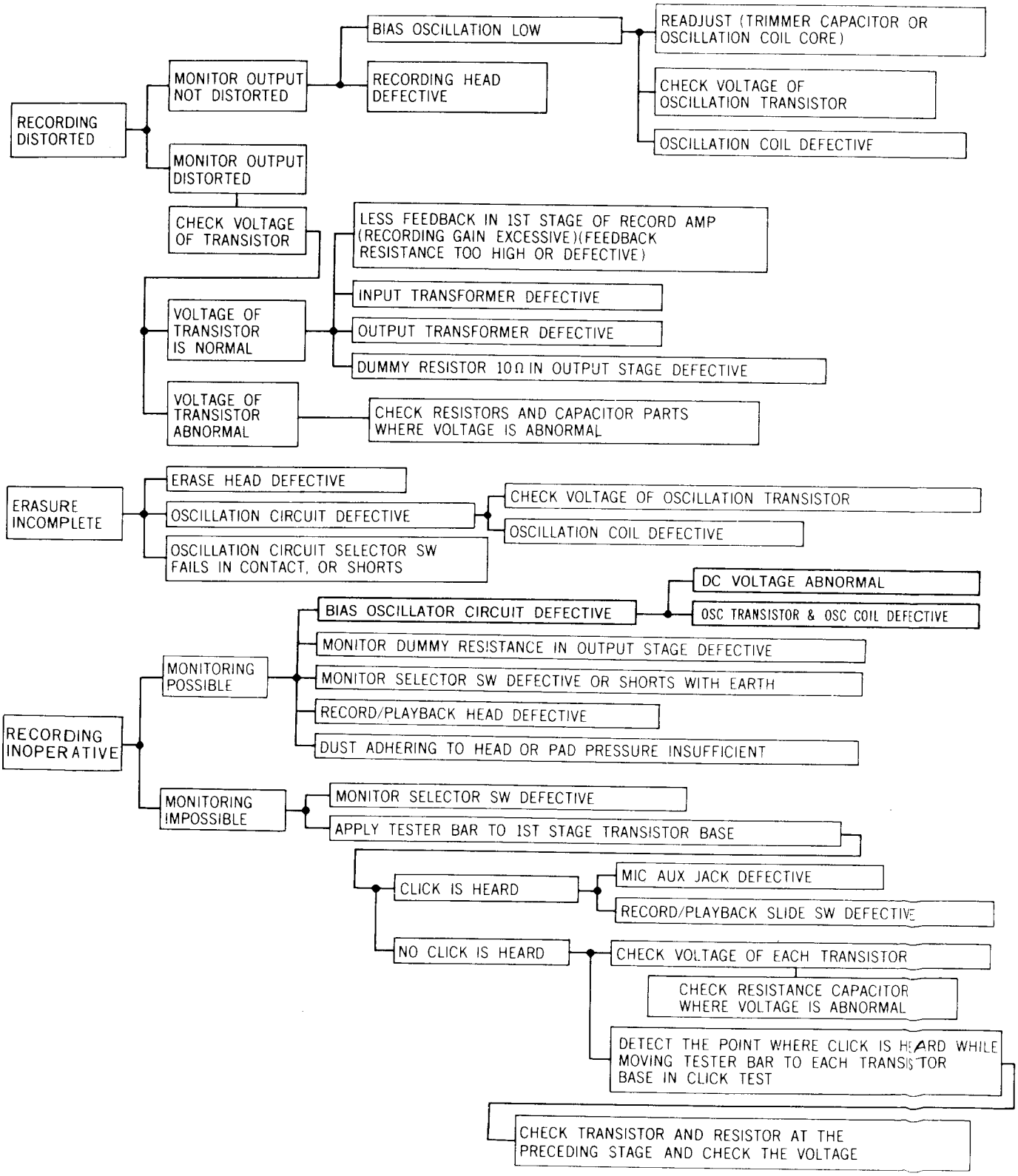
CABINET PARTS





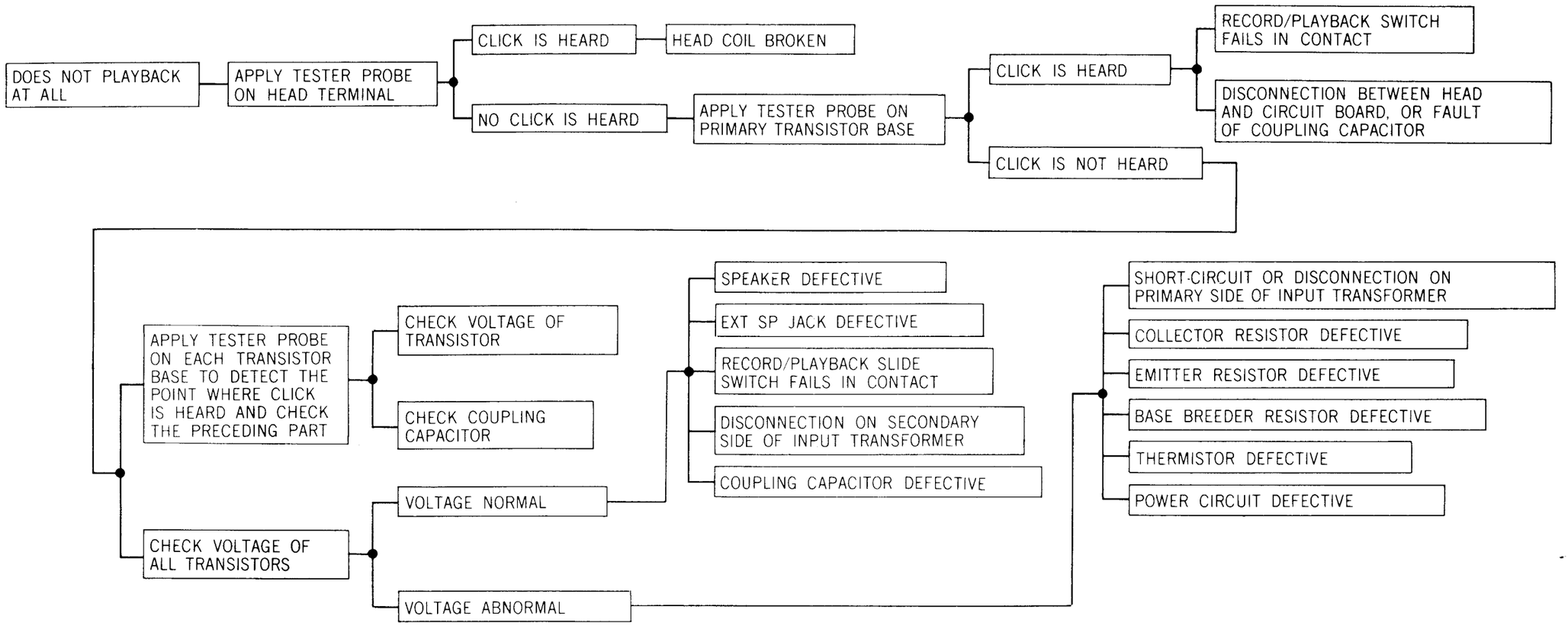
TROUBLE SHOOTING GUIDE 1

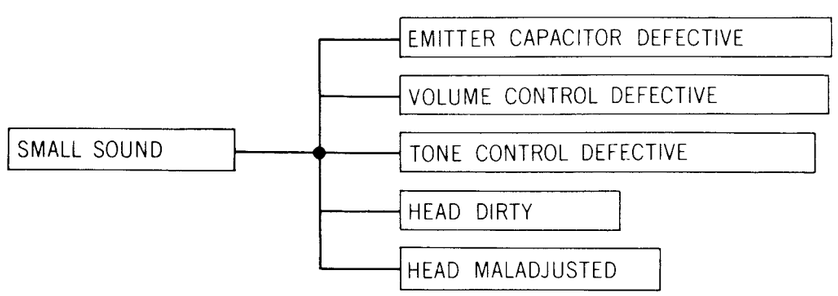
DEFECTIVE RECORDING CIRCUIT

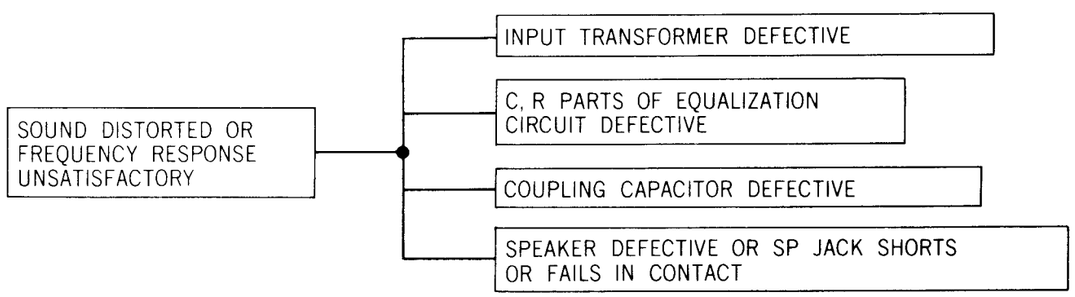

RECORDING DISTORTED
MONITOR OUTPUT NOT DISTORTED
BIAS OSCILLATION LOW
READJUST (TRIMMER CAPACITOR OR OSCILLATION COIL CORE)
RECORDING HEAD DEFECTIVE
CHECK VOLTAGE OF OSCILLATION TRANSISTOR
OSCILLATION COIL DEFECTIVE
MONITOR OUTPUT DISTORTED
CHECK VOLTAGE OF TRANSISTOR
LESS FEEDBACK IN 1ST STAGE OF RECORD AMP (RECORDING GAIN EXCESSIVE)(FEEDBACK RESISTANCE TOO HIGH OR DEFECTIVE)
VOLTAGE OF TRANSISTOR IS NORMAL
INPUT TRANSFORMER DEFECTIVE
OUTPUT TRANSFORMER DEFECTIVE
DUMMY RESISTOR 10Ω IN OUTPUT STAGE DEFECTIVE
VOLTAGE OF TRANSISTOR ABNORMAL
CHECK RESISTORS AND CAPACITOR PARTS WHERE VOLTAGE IS ABNORMAL
ERASURE INCOMPLETE
ERASE HEAD DEFECTIVE
OSCILLATION CIRCUIT DEFECTIVE
CHECK VOLTAGE OF OSCILLATION TRANSISTOR
OSCILLATION COIL DEFECTIVE
OSCILLATION CIRCUIT SELECTOR SW FAILS IN CONTACT, OR SHORTS
RECORDING INOPERATIVE
MONITORING POSSIBLE
BIAS OSCILLATOR CIRCUIT DEFECTIVE
DC VOLTAGE ABNORMAL
OSC TRANSISTOR & OSC COIL DEFECTIVE
MONITOR DUMMY RESISTANCE IN OUTPUT STAGE DEFECTIVE
MONITOR SELECTOR SW DEFECTIVE OR SHORTS WITH EARTH
RECORD/PLAYBACK HEAD DEFECTIVE
DUST ADHERING TO HEAD OR PAD PRESSURE INSUFFICIENT
MONITORING IMPOSSIBLE
MONITOR SELECTOR SW DEFECTIVE
APPLY TESTER BAR TO 1ST STAGE TRANSISTOR BASE
CLICK IS HEARD
MIC AUX JACK DEFECTIVE
RECORD/PLAYBACK SLIDE SW DEFECTIVE
NO CLICK IS HEARD
CHECK VOLTAGE OF EACH TRANSISTOR
CHECK RESISTANCE CAPACITOR WHERE VOLTAGE IS ABNORMAL
DETECT THE POINT WHERE CLICK IS HEARD WHILE MOVING TESTER BAR TO EACH TRANSISTOR BASE IN CLICK TEST
CHECK TRANSISTOR AND RESISTOR AT THE PRECEDING STAGE AND CHECK THE VOLTAGE

TROUBLE SHOOTING GUIDE 2

DEFECTIVE PLAYBACK CIRCUIT


DOES NOT PLAYBACK AT ALL
APPLY TESTER PROBE ON HEAD TERMINAL
CLICK IS HEARD
HEAD COIL BROKEN
NO CLICK IS HEARD
APPLY TESTER PROBE ON PRIMARY TRANSISTOR BASE
CLICK IS HEARD
RECORD/PLAYBACK SWITCH FAILS IN CONTACT
DISCONNECTION BETWEEN HEAD AND CIRCUIT BOARD, OR FAULT OF COUPLING CAPACITOR
CLICK IS NOT HEARD
APPLY TESTER PROBE ON EACH TRANSISTOR BASE TO DETECT THE POINT WHERE CLICK IS HEARD AND CHECK THE PRECEDING PART
CHECK VOLTAGE OF TRANSISTOR
CHECK COUPLING CAPACITOR
CHECK VOLTAGE OF ALL TRANSISTORS
VOLTAGE NORMAL
VOLTAGE ABNORMAL
SPEAKER DEFECTIVE
EXT SP JACK DEFECTIVE
RECORD/PLAYBACK SLIDE SWITCH FAILS IN CONTACT
DISCONNECTION ON SECONDARY SIDE OF INPUT TRANSFORMER
COUPLING CAPACITOR DEFECTIVE
SHORT-CIRCUIT OR DISCONNECTION ON PRIMARY SIDE OF INPUT TRANSFORMER
COLLECTOR RESISTOR DEFECTIVE
EMITTER RESISTOR DEFECTIVE
BASE BREEDER RESISTOR DEFECTIVE
THERMISTOR DEFECTIVE
POWER CIRCUIT DEFECTIVE




SOUND DISTORTED OR FREQUENCY RESPONSE UNSATISFACTORY
INPUT TRANSFORMER DEFECTIVE
C, R PARTS OF EQUALIZATION CIRCUIT DEFECTIVE
COUPLING CAPACITOR DEFECTIVE
SPEAKER DEFECTIVE OR SP JACK SHORTS OR FAILS IN CONTACT

TROUBLE SHOOTING GUIDE 3

DEFECTIVE MECHANISM

A

- TAPE DOES NOT RUN IN PLAY OR REC MODE
  - NO PLAY LOCK MODE THOUGH CASSETTE IS PUSHED IN
    - LOCK LEVER "B" DEFECTIVE
  - PLAY LOCK MODE WHEN CASSETTE IS PUSHED IN
    - MOTOR DOES NOT ROTATE
      - S3, S8 DEFECTIVE
    - MOTOR ROTATES
      - CAPSTAN ROTATES
        - TAKEUP REEL TABLE DOES NOT ROTATE
        - PRESSURE OF PRESSURE ROLLER INSUFFICIENT
        - PRESSURE ROLLER DIRTY
        - CAPSTAN DIRTY
        - DOES NOT COME IN TOUCH WITH HEAD TAPE
          - PRESSURE OF SPRING TO PRESS HEAD HOLDING PLATE INSUFFICIENT
      - CAPSTAN DOES NOT ROTATE
        - CAPSTAND BELT OFF
        - MOTOR PULLEY DIRTY
        - MOTOR PULLEY HOLDING SCREW LOOSE
        - CAPSTAN BURNT
        - FLYWHEEL & BELT CONTACT SURFACE DIRTY
      - TAKEUP REEL TABLE DOES NOT ROTATE
        - TAKEUP TABLE DIRTY
        - TAKEUP IDLER PRESSURE INSUFFICIENT
          - TAKEUP IDLER SPRING WEAK OR GETTS OFF
        - TAKEUP IDLER DIRTY
        - TAKEUP TENSION OF TAKEUP REEL TABLE INSUFFICIENT
          - REINFORCE FRICTION SPRING WITH WASHER

B

- CASSETTE DOES NOT RETURN THOUGH STOP BUTTON IS DEPRESSED
  - STOP SPRING WEAK
    - STRENGTHEN SPRING
  - GUIDE ROLLERS ON BOTH SIDES OF BASE PLATE MOVING LEVER
    - APPLY GREASE
  - STOP LEVER AND STOP BUTTON LEVER BENT
  - LOCK LEVER AND LOCK PIN BURNT
    - APPLY GREASE TO LOCK PIN

C

- FAST FORWARD ABNORMAL
  - MOTOR DOES NOT ROTATE
  - MOTOR ROTATES
    - FF BELT OFF
    - FF IDLER DIRTY
    - KNURLED SURFACE OF FLYWHEEL DIRTY
      - FF LEVER SPRING WEAK
    - PRESSURE OF F.F.IDLER INSUFFICIENT
    - F F PULLEY DIRTY
    - REEL TABLE DIRTY

D

REWIN

S3, S8
DEFECTIVE

E OF SPRING TO
EAD HOLDING
SUFFICIENT

DLER SPRING
GETTS OFF

E FRICTION SPRING
SHER

B

CASSETTE DOES NOT RETURN THOUGH STOP BUTTON IS DEPRESSED

- STOP SPRING WEAK — STRENGTHEN SPRING
- GUIDE ROLLERS ON BOTH SIDES OF BASE PLATE MOVING LEVER — APPLY GREASE
- STOP LEVER AND STOP BUTTON LEVER BENT
- LOCK LEVER AND LOCK PIN BURNT — APPLY GREASE TO LOCK PIN

C

FAST FORWARD ABNORMAL

- MOTOR DOES NOT ROTATE
- MOTOR ROTATES
  - FF BELT OFF
  - FF IDLER DIRTY
  - KNURLED SURFACE OF FLYWHEEL DIRTY — FF LEVER SPRING WEAK
  - PRESSURE OF F.F.IDLER INSUFFICIENT
  - F F PULLEY DIRTY
  - REEL TABLE DIRTY

D

REWINDING ABNORMAL

- MOTOR DOES NOT ROTATE
- MOTOR ROTATES
  - TENSION OF REW LEVER SPRING INSUFFICIENT
  - REEL TABLE DIRTY
  - REWIND BELT OFF
  - REWIND PULLEY DIRTY
  - KNURLED SURFACE OF FLYWHEEL DIRTY

E

AUTOMATIC STOP INOPERATIVE

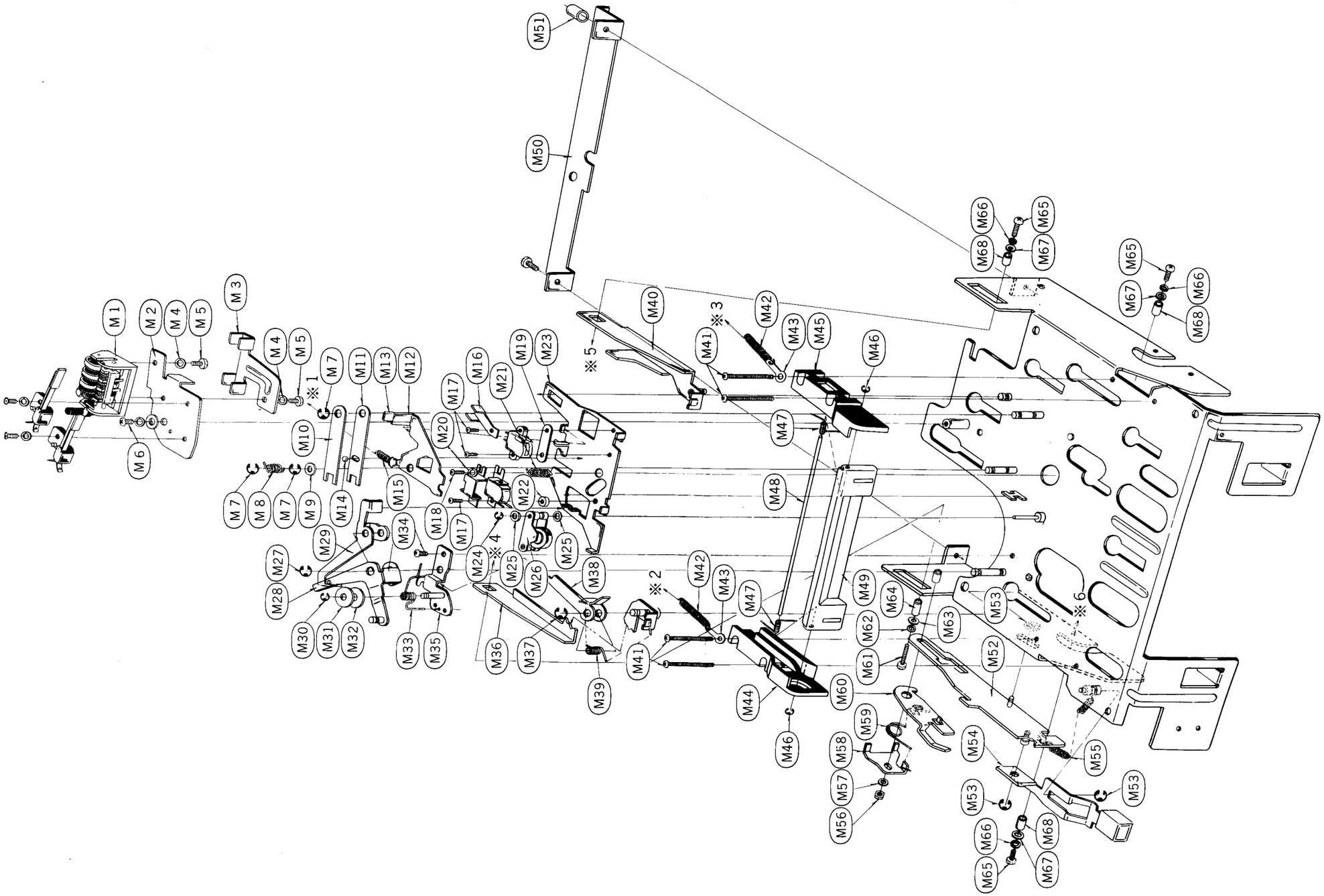
- AUTOMATIC STOP OPERATIVE
  - TAPE LOOSE ON SUPPLY SIDE
  - TRANSISTOR Tr8 & ROTATION SWITCH DEFECTIVE
- AUTOMATIC STOP INOPERATIVE WHILE TAPE IS AT A STOP
  - PLUNGER DEFECTIVE
  - ROTATION SWITCH DEFECTIVE
  - Tr8, Tr9 DEFECTIVE
  - LEAD WIRE BROKEN

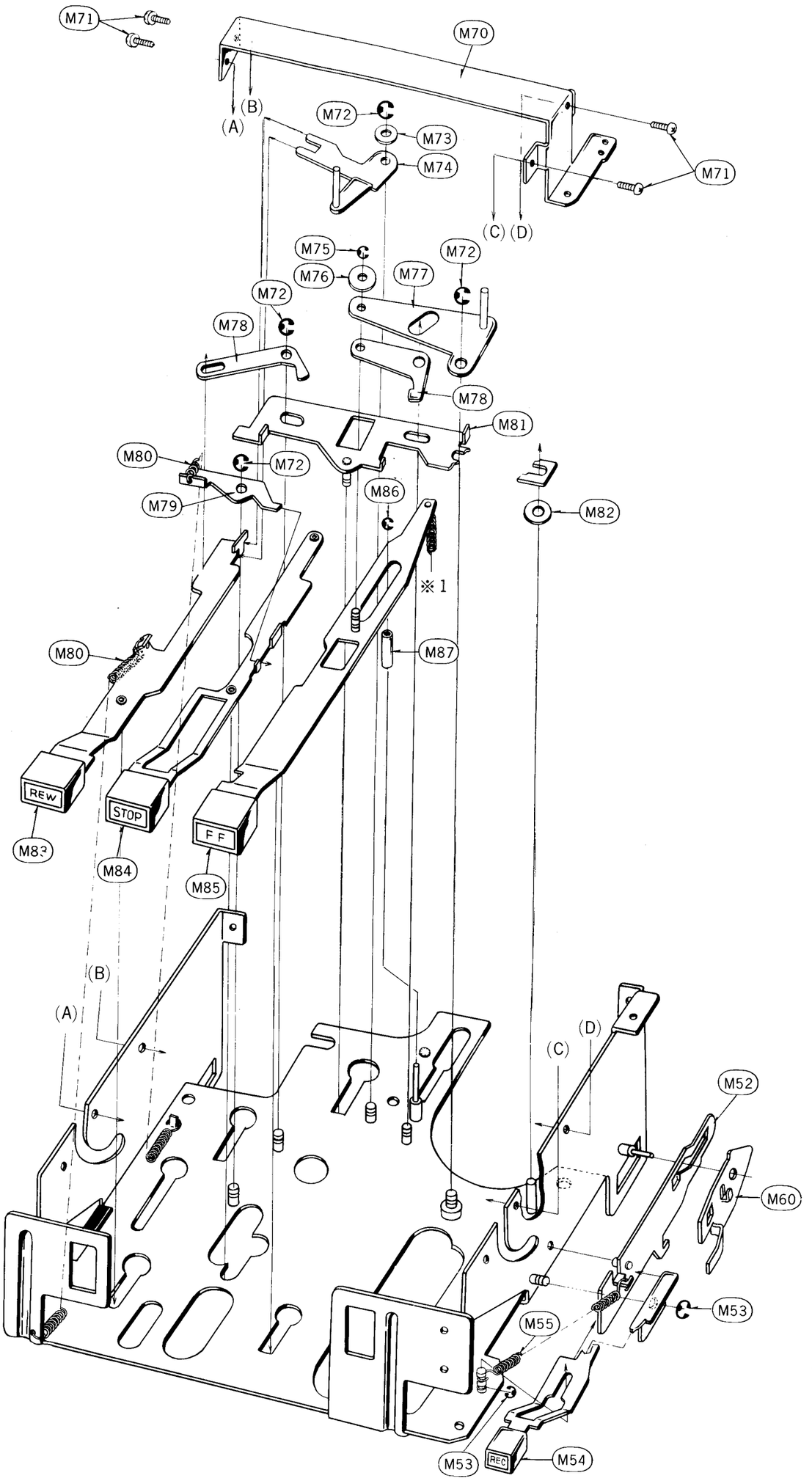
F

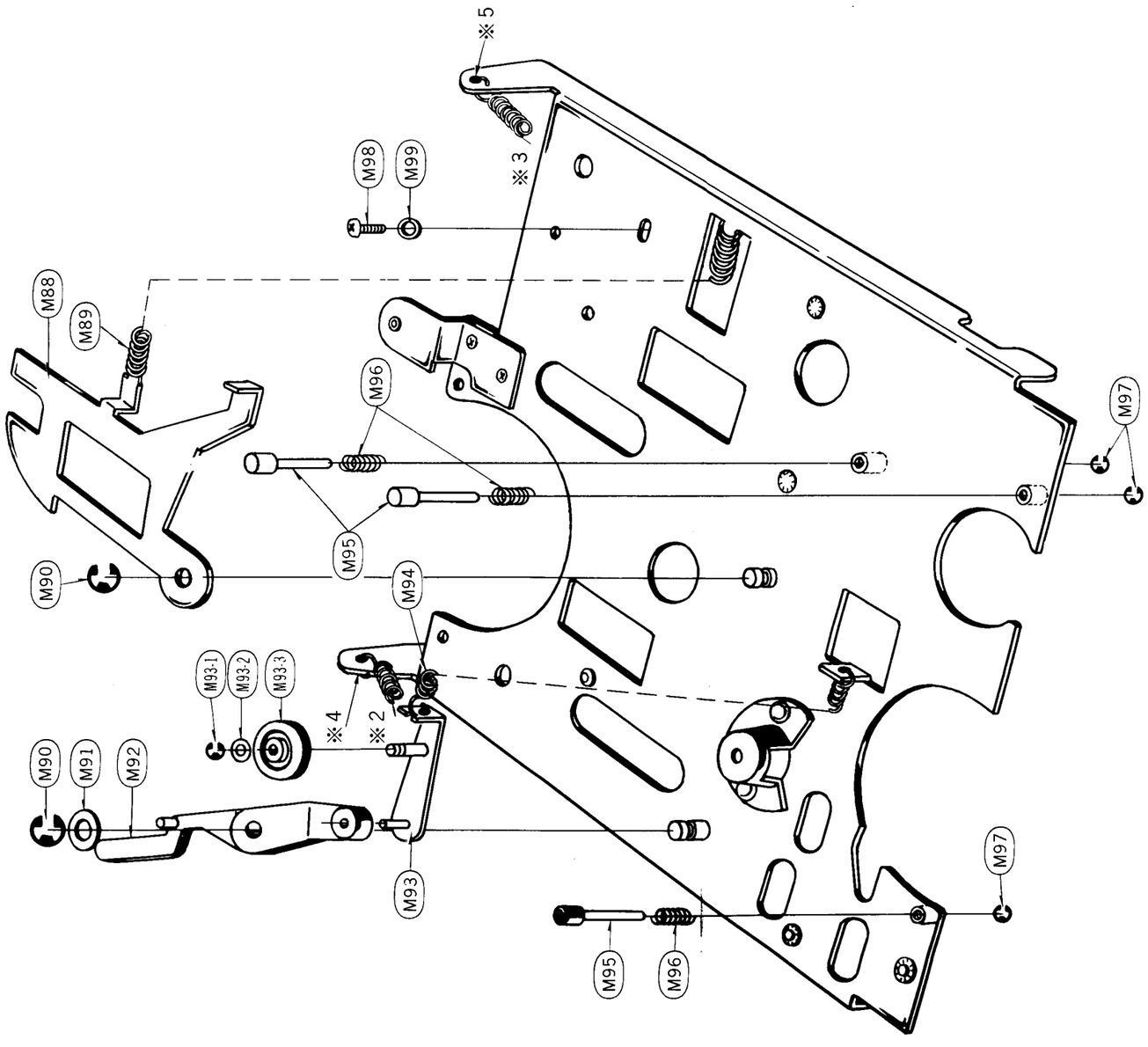
DOES NOT COUNT

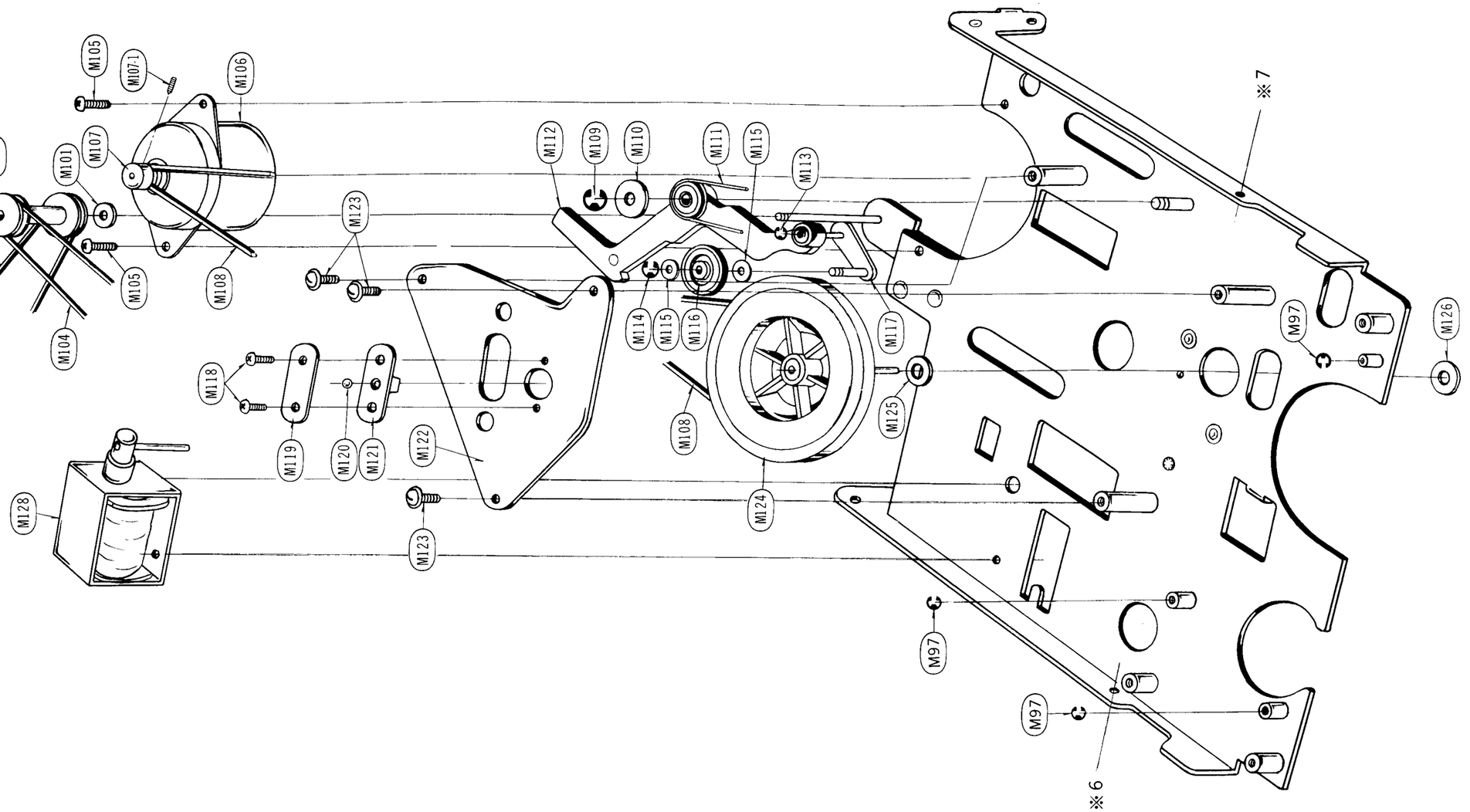
- COUNTER GEAR BROKEN
- COUNTER BELT OFF OR BROKEN
- RELAY PULLEY SHAFT BURNT
- COUNTER OUT OF ORDER AND HEAVY

EXPLODED VIEWS

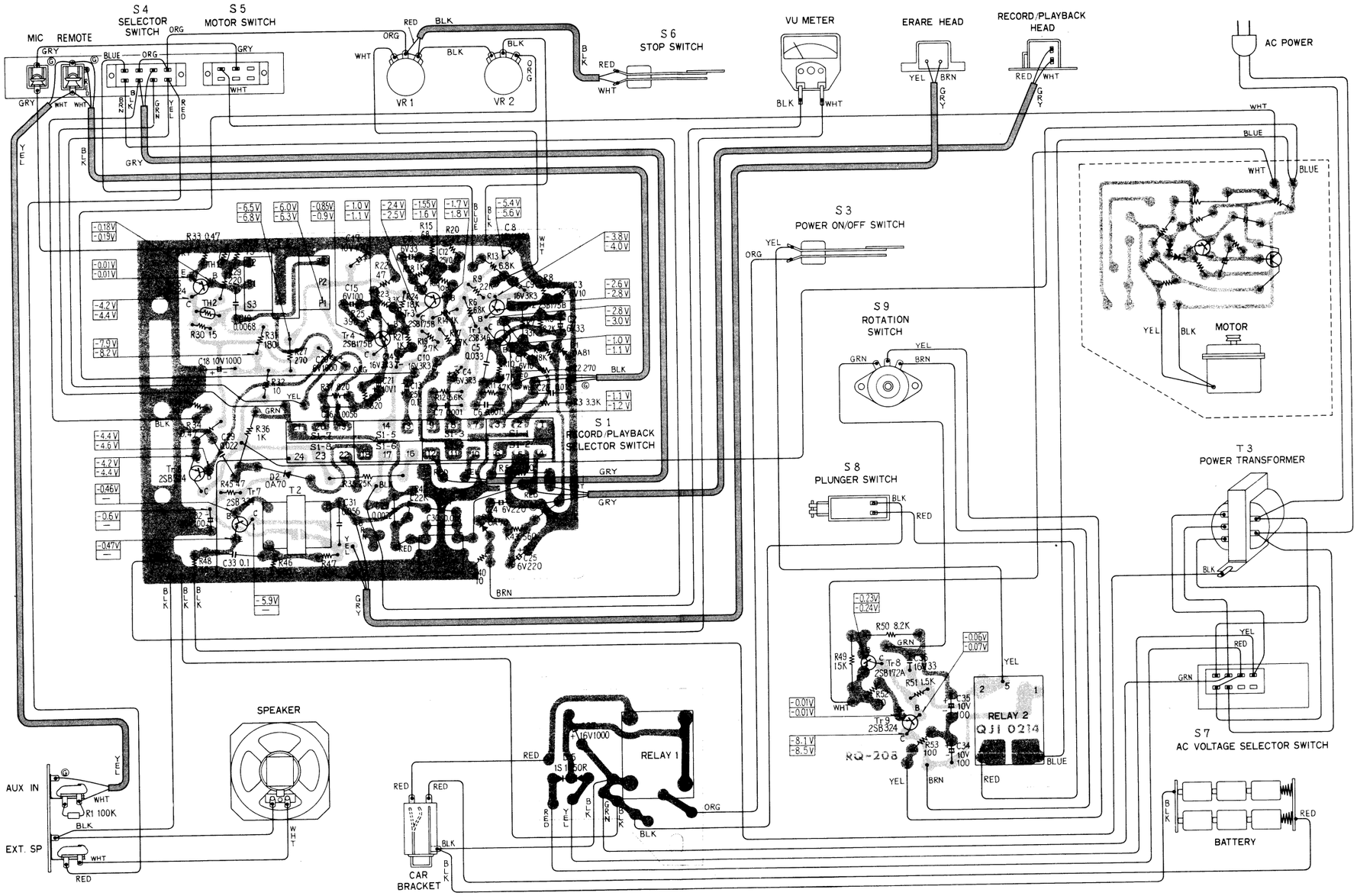



M71
M70
(A)
(B)
M72
M73
M74
M71
(C)
(D)
M75
M76
M77
M72
M72
M78
M78
M81
M80
M72
M79
M86
M82
※1
M80
M87
REW
STOP
FF
M83
M84
M85
(B)
(A)
(C)
(D)
M52
M60
M53
M55
M53
REC
M54


※5
※3
M98
M99
M88
M89
M96
M97
M95
M90
M94
M93-1
M93-2
M93-3
※4
※2
M90
M91
M92
M93
M97
M95
M96


M105
M107-1
M106
M100
M101
M102
M101
M107
M123
M112
M109
M110
M111
M115
M113
M103
M105
M108
M104
M114
M115
M116
M117
M97
M126
※7
M118
M119
M120
M121
M122
M108
M125
M128
M123
M124
M97
M97
※6

WIRING CONNECTION DIAGRAM MODEL RQ-208S

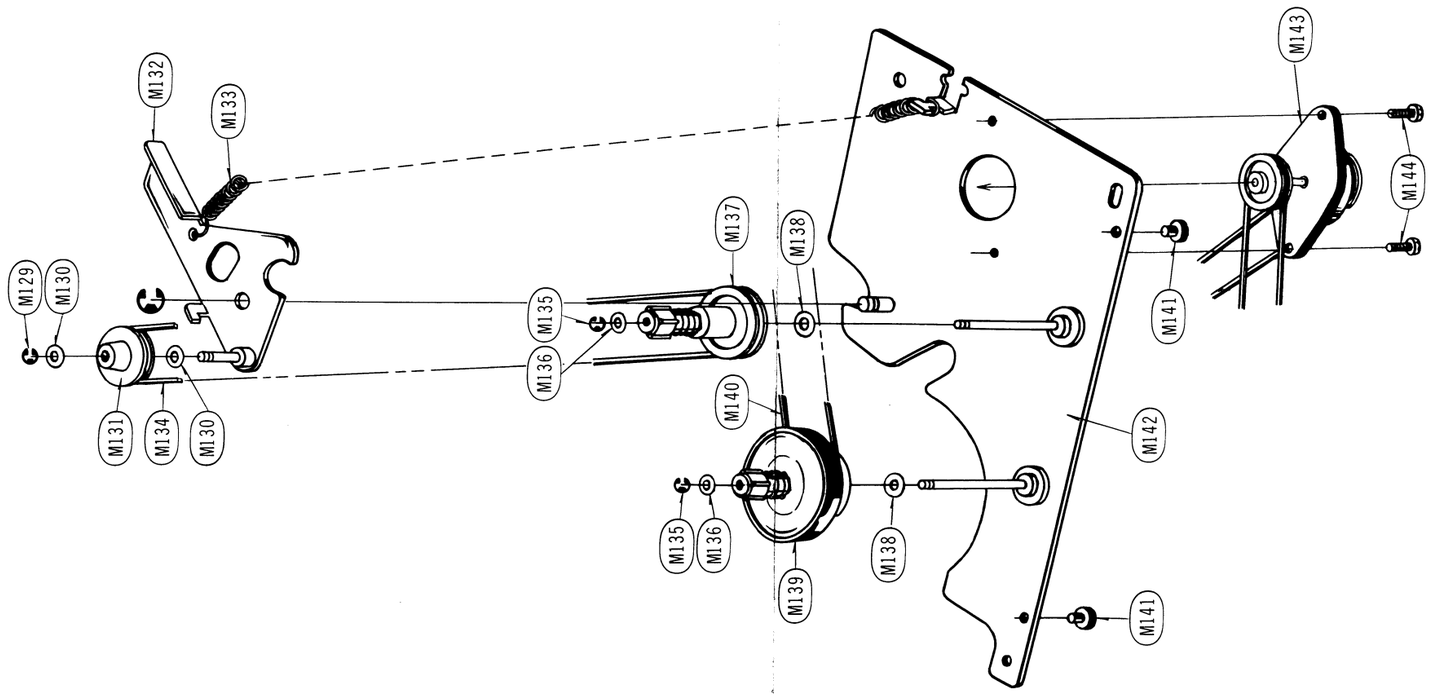


NOTE:
The circuit shown in red on the conductor side is −B circuit.
Values indicated in ⌜ ⌝ are DC to chassis ground with no signal applied.
The upper values should be measured during recording and the lower values during playback.

Consuming Current (no-signal time; VR minimum)

	Overall	Amplifier	Motor
RECORDING	Not more than 120 mA	Not more than 25 mA	Not more than 90 mA
PLAYBACK	Not more than 140 mA	Not more than 40 mA	Not more than 90 mA
FAST FORWARD	Not more than 220 mA		Not more than 120 mA
REWIND	Not more than 220 mA		Not more than 120 mA

BLK ..... BLACK
BLUE ..... BLUE
BRN ..... BROWN
GRN ..... GREEN
GRY ..... GRAY
L. BLUE ... LIGHT BLUE
ORG ..... ORANGE
RED ..... RED
VLT ..... VIOLET
WHT ..... WHITE
YEL ..... YELLOW
© ..... Shield Wire


M132
M133
M129
M130
M131
M134
M130
M135
M136
M137
M138
M139
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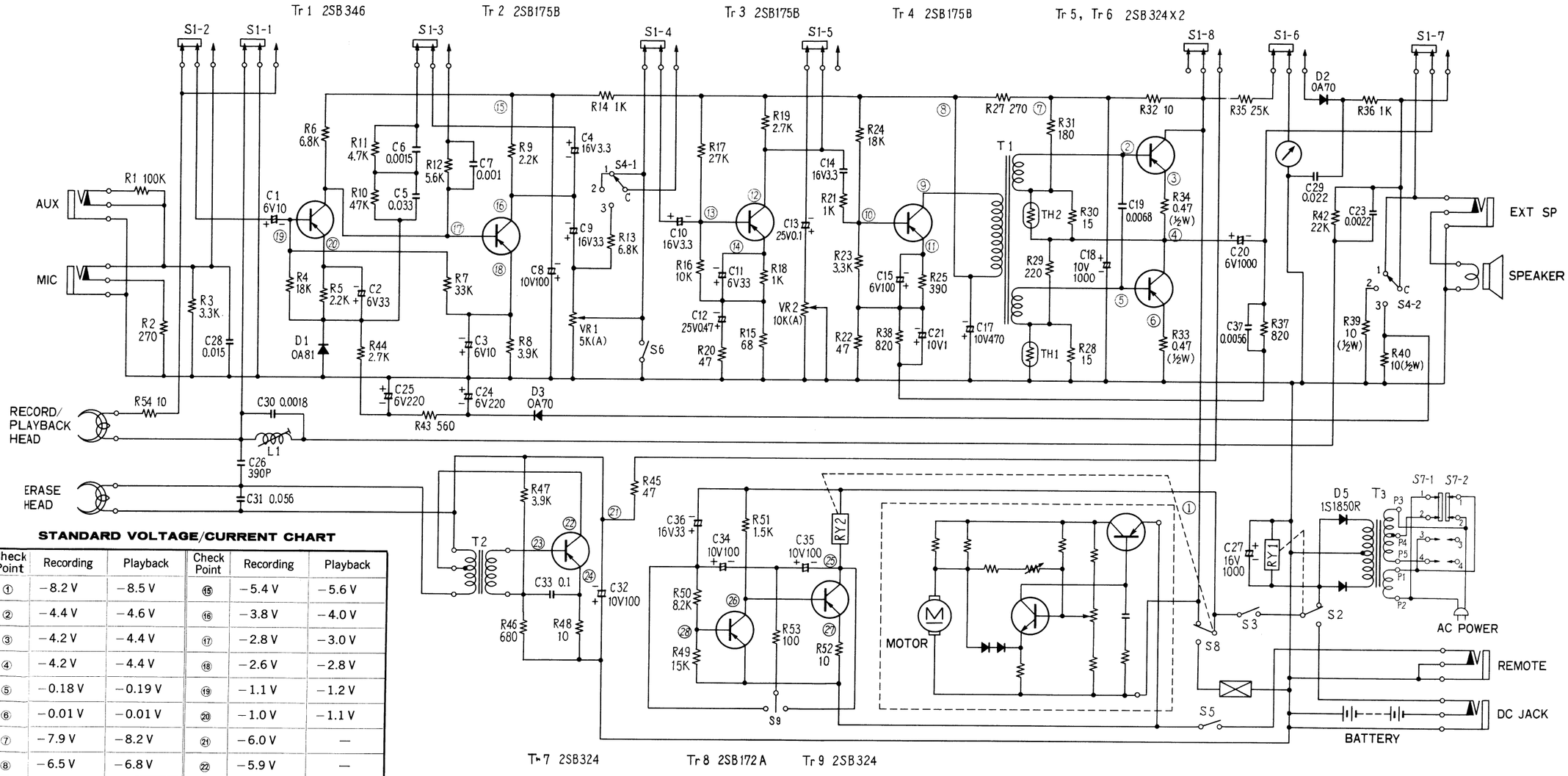
M135
M136
M138
M143
M144
M141
M142
M141

SCHEMATIC DIAGRAM MODEL RQ-208S



STANDARD VOLTAGE/CURRENT CHART

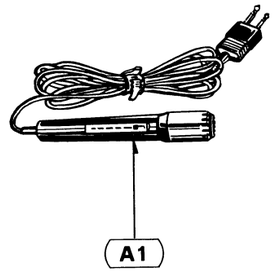
Check Point	Recording	Playback	Check Point	Recording	Playback
①	−8.2 V	−8.5 V	⑮	−5.4 V	−5.6 V
②	−4.4 V	−4.6 V	⑯	−3.8 V	−4.0 V
③	−4.2 V	−4.4 V	⑰	−2.8 V	−3.0 V
④	−4.2 V	−4.4 V	⑱	−2.6 V	−2.8 V
⑤	−0.18 V	−0.19 V	⑲	−1.1 V	−1.2 V
⑥	−0.01 V	−0.01 V	⑳	−1.0 V	−1.1 V
⑦	−7.9 V	−8.2 V	㉑	−6.0 V	—
⑧	−6.5 V	−6.8 V	㉒	−5.9 V	—
⑨	−6.0 V	−6.3 V	㉓	−0.46 V	—
⑩	−1.0 V	−1.1 V	㉔	−0.47 V	—
⑪	−0.85 V	−0.9 V	㉕	−8.1 V	−8.5 V
⑫	−2.4 V	−2.5 V	㉖	−0.06 V	−0.07 V
⑬	−1.7 V	−1.8 V	㉗	−0.01 V	−0.01 V
⑭	−1.55 V	−1.6 V	㉘	−0.23 V	−0.24 V

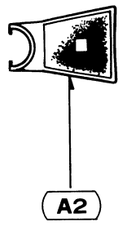
NOTE: All measurements are under no signal conditions with volume at minium position.
Use M-type VTVM for AC voltage measurements and P-type VTVM for DC voltage measurments.

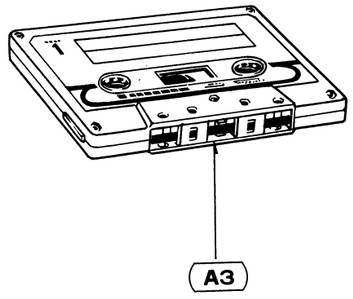
NOTE:

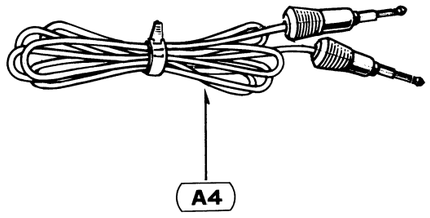
1. S1-1～S1-8 ... Record/Playback Selector Switch (Shown in Playback position).
2. S2 ..... AC/DC Selector Switch (Relay 1).
3. S3 ..... Power ON/OFF Switch (ON in Slide-in position).
4. S4-1, S4-2 ... Selector Switch.
   1.....Sound Monitor, 2.....OFF, 3.....ARC.
5. S5 ..... Motor Switch.
6. S6 ..... Stpo Switch (ON in FF/REW position).
7. S7-1, S7-2 ... AC Voltage Selector Switch (1-2 110V, 2-3 220V, 3-4 240V).
8. S8 ..... Plunger Switch (Relay 2).
9. S9 ..... Rotation Switch.
10. Resistors are 1/4 watt unless specified otherwise.
    K=1,000Ω, M=1,000,000Ω.
11. Capacitors are microfarad (μF) unless specified otherwise.
    P=Micro-microfarads.
12. Encircled numbers (◯) show checkpoints for voltage and current.
    The values are marked in the standard voltage/current chart.

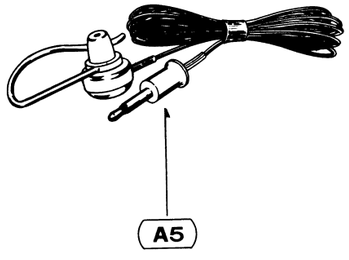
ACCESSORIES

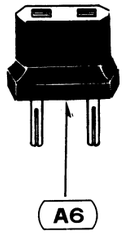


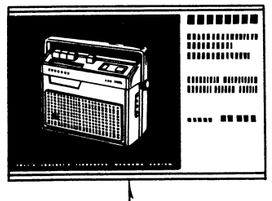




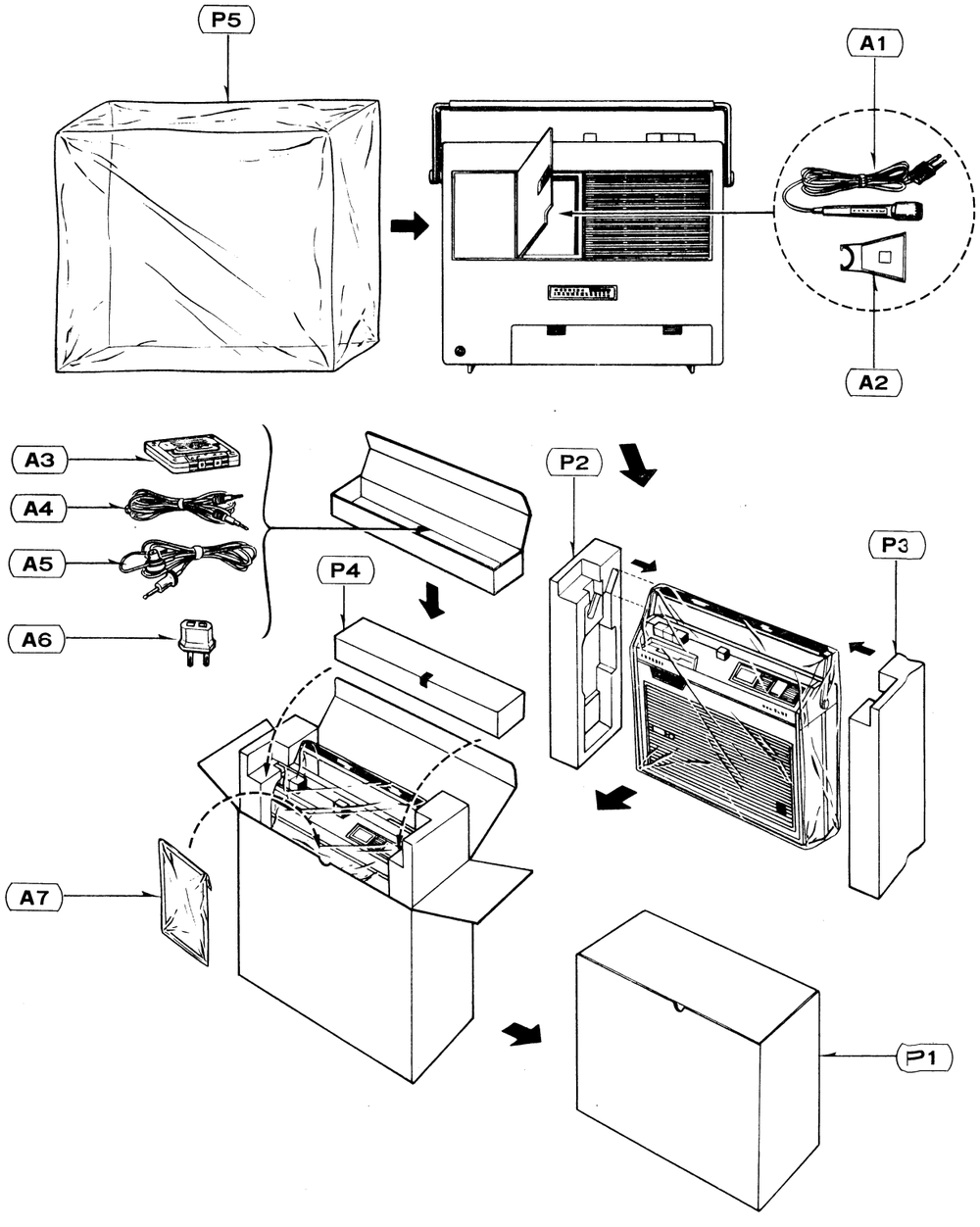








CONPONENT PACKING



Printed in Japan

ORDER NO. ARD-907026

NATIONAL Service Manual

SOLID STATE CASSETTE TAPE RECORDER
MODEL RQ-208S

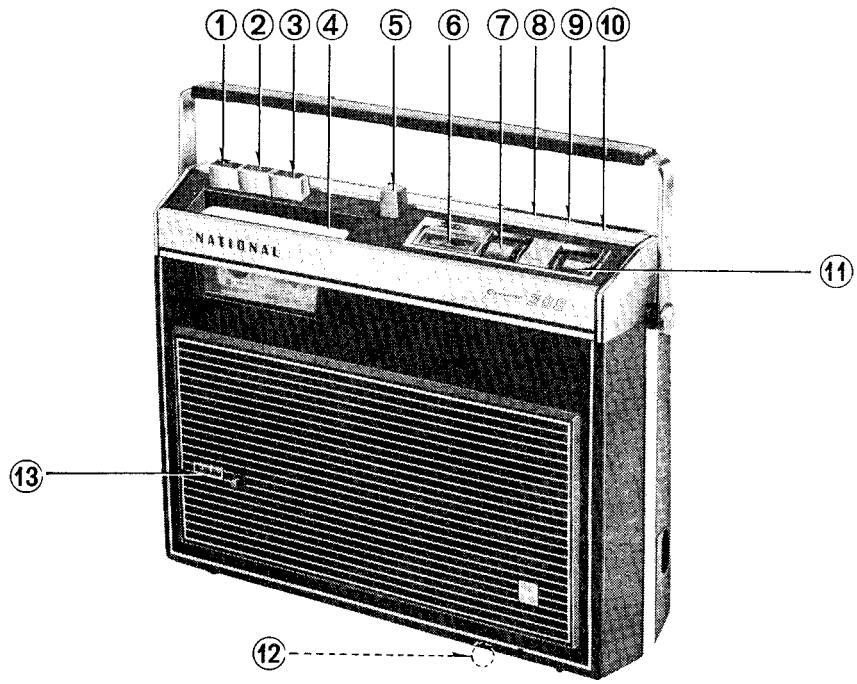
SPECIFICATIONS

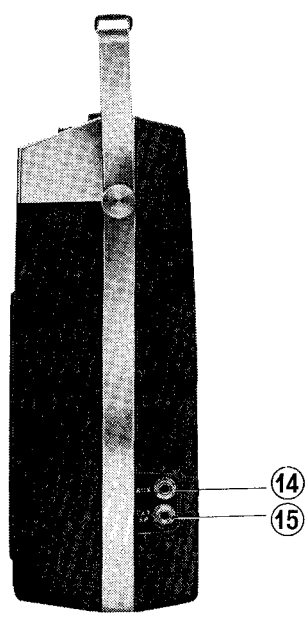
Power Source:	AC: 110, 220, 240 Volts 50/60 Hz DC: 9 Volts (six UM-1 batteries)
Battery Life:	Approx. 15 hrs (with NATIONAL "Hi-Top" batteries)
Power Consumption:	Approx. 6 W
Operation System:	Slide-in and push button
Tape Speed:	1-7/8 ips
Transistors:	2SB 346 (1) 2SB 175 (3) 2SB 324 (4) 2SB 172 (1)
Diodes:	OA 70 (2) OA 81 (1)
Track System:	2 track
Music Power:	3 W
Frequency Response:	50~10,000 Hz
Recording System:	AC bias 35 KHz
Erase System:	AC erase
Fast Forward Time:	Approx. 90 seconds with cassette tape RT-60
Rewind Time:	Approx. 90 seconds with cassette tape RT-60
Built-in Speaker:	4″ dynamic speaker
Inputs:	"MIC" input 0.25 mV 270Ω~5 KΩ "AUX" input 0.1V 100 KΩ "EXT DC" input 9V
Output:	"EXT SP" output 1V 8Ω
Dimensions:	11-7/16″(W)×8-7/8″(H)×3-3/8″(D)
Weight:	7-1/4 lbs

<EXPORT DIVISION>
MATSUSHITA ELECTRIC TRADING CO., LTD.
P.O. Box 288, Central, Osaka, Japan

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
AUDIO TAPE RECORDING DEPT.

LOCATION OF PARTS



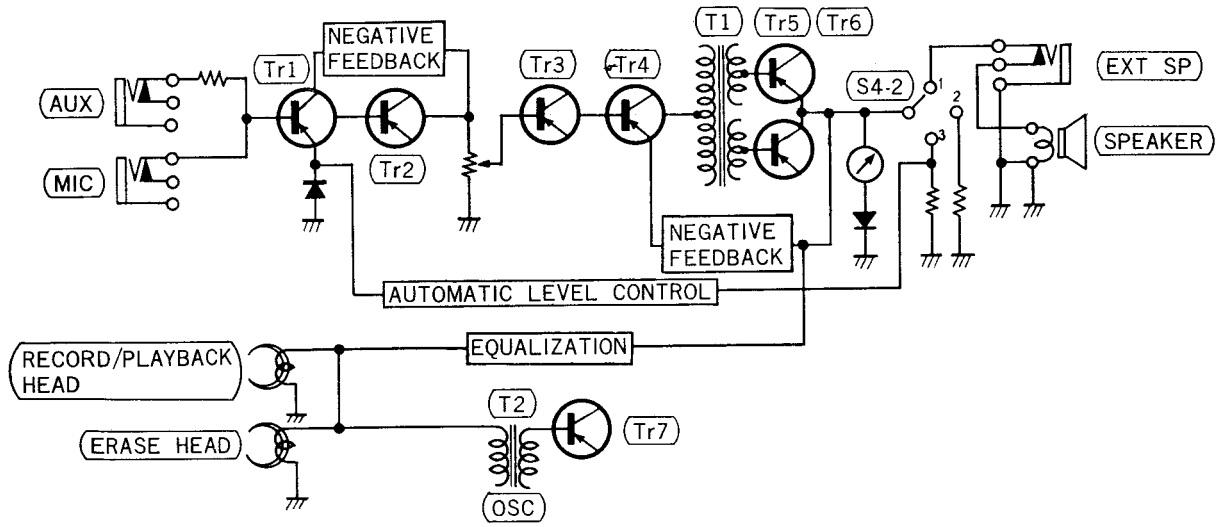


① Rewind Button
② Stop Button
③ Fast Forward Button
④ Tape Slot
⑤ Record Button
⑥ VU Meter
⑦ Tone Control Knob
⑧ Pause Control
⑨ Selector Switch
⑩ MIC Remote Jack
⑪ Volume Control Knob
⑫ Jack for use with Car Bracket
⑬ Tape Counter & Reset Button
⑭ Auxiliary Input Jack
⑮ External Speaker Jack

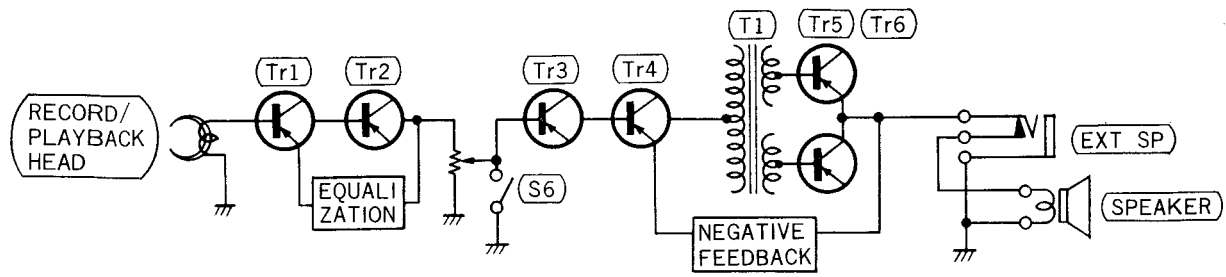
Fig. 1

BLOCK DIAGRAM OF ELECTRICAL CIRCUITS

RECORDING CIRCUIT



PLAYBACK CIRCUIT



MOTOR AUTO POP UP & POWER SOURCE CIRCUIT

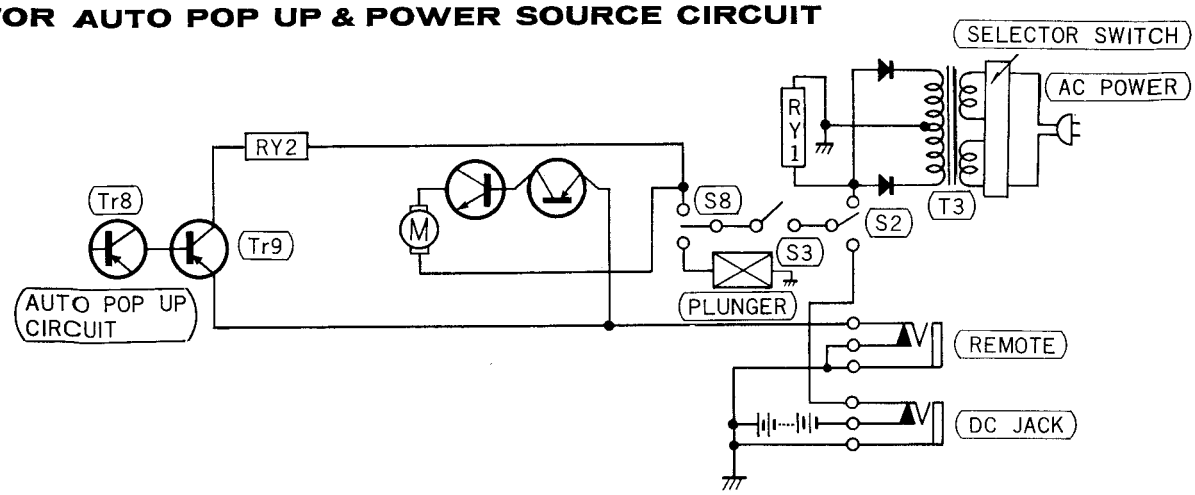


Fig. 2

DISASSEMBLY INSTRUCTIONS

REMOVING THE BOTTOM CASE

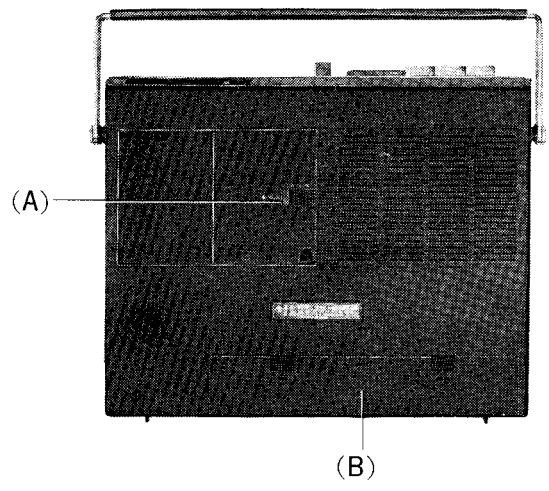


Fig. 3

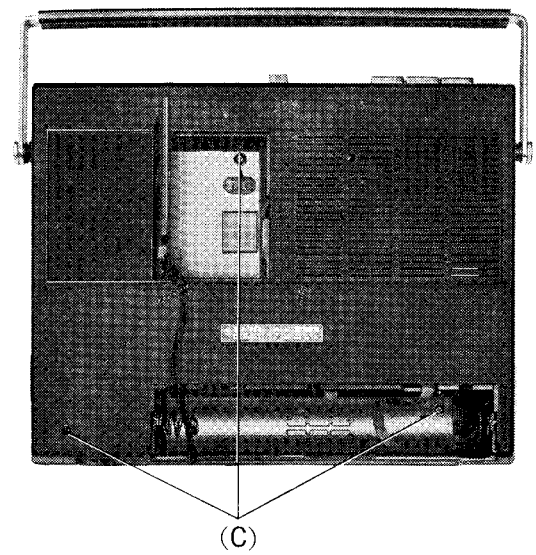


Fig. 4

1. Open the Power Cord Compartment Lid (A).
2. Take off the Battery Cover (B).
3. Remove 3 Bottom Case Holding Screws (C).
4. Then the Bottom Case can be removed.

REMOVING THE CHASSIS

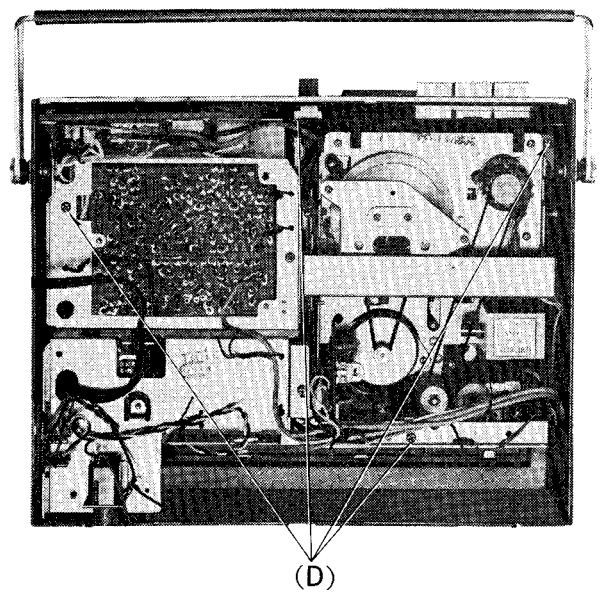


Fig. 5

1. Remove 4 Chassis Holding Screws (D).
2. Then the Chassis can be removed.

MECHANICAL ADJUSTMENTS

PRESSURE ROLLER ADJUSTMENT

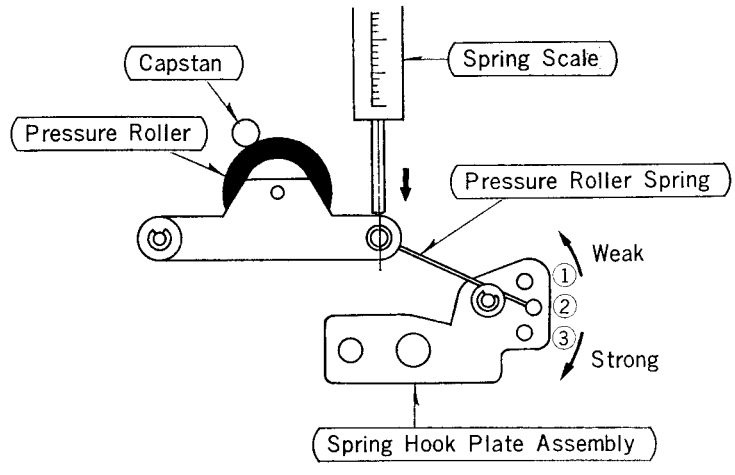


Fig. 6

1. Place the set into the PLAYBACK mode.
2. Hook a spring balance as shown in the figure and Push it in the arrow direction.
3. Measure the value at the moment when the Pressure Roller comes off from the Capstan.
4. The standard pressure of the Pressure Roller is 260 ~340 gr.
5. If the measured value be outside the specified range, change the hooking position of the Pressure Roller Spring to either Hole ① or ③ so that pressure of the Pressure Roller becomes 260~340 gr.

TAKEUP TORQUE ADJUSTMENT

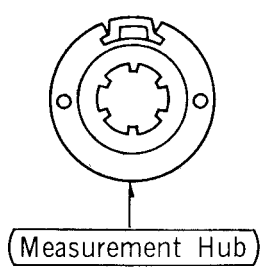


Fig. 7

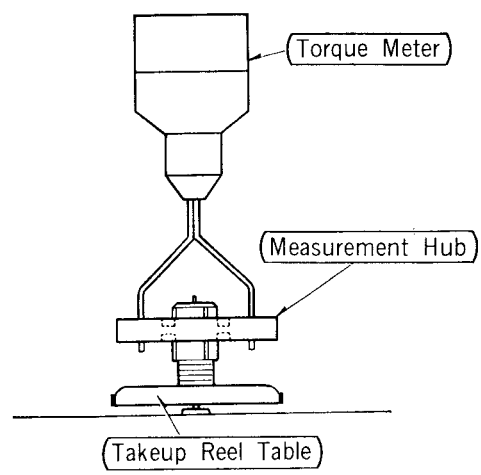


Fig. 8

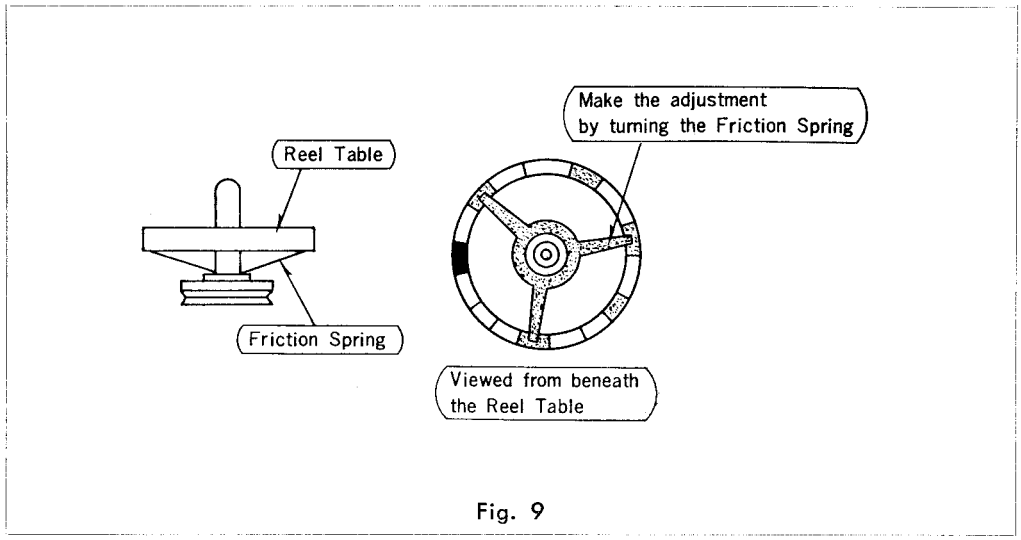


Fig. 9

Instruments Required: Torque Meter (having a range of 20~100 gr-cm)
Measurement Hub (Take out the Table part of the Cassette Tape, perforate 2 holes vertically to the frame, and fix it to the Torque Meter by using a wire.)

1. Place the set in the PLAYBACK mode, and put the Measurement Hub with the Torque Meter into the Takeup Reel Table.
2. The rotational torque of the Takeup Reel Table is transmitted to the torque meter and the torque meter indication gets constant. When the Takeup Reel Table stops running, read the torque meter.
3. The standard Takeup Tension of the Takeup Reel Table is 30~65 gr-cm.
4. Torque increases when the Friction Spring on the lower side of the Reel Table is turned to right, and reduces when the Friction Spring is turned to left. (see Fig. 9)

R/P HEAD ANGLE ADJUSTMENT

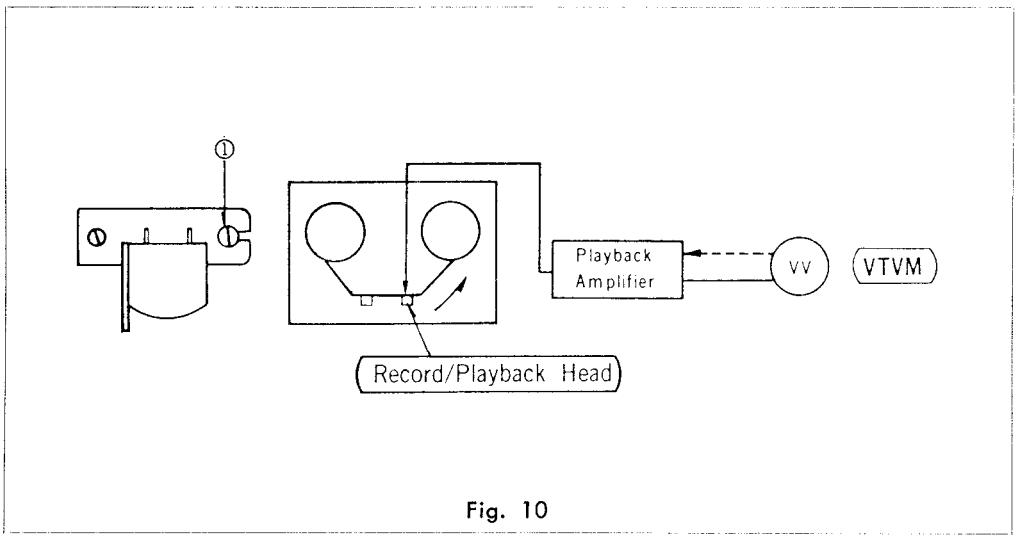


Fig. 10

Instruments Required: VTVM, Standard Tape for 3 KHz (at 1-7/8 ips) Angle Adjustment (or Tape on which recording is made by a reliable tape recorder).

Connect wires as shown in Fig. 10, thread the Tape and place the tape recorder into the playback mode. Turn either of the Angle Adjustment Screws ① in Fig. 10 by a 1/4 turn, and make the adjustment so that the reading on the VTVM connected to the Line Out becomes maximum.

AMPLIFIER ADJUSTMENTS

ERASE CURRENT

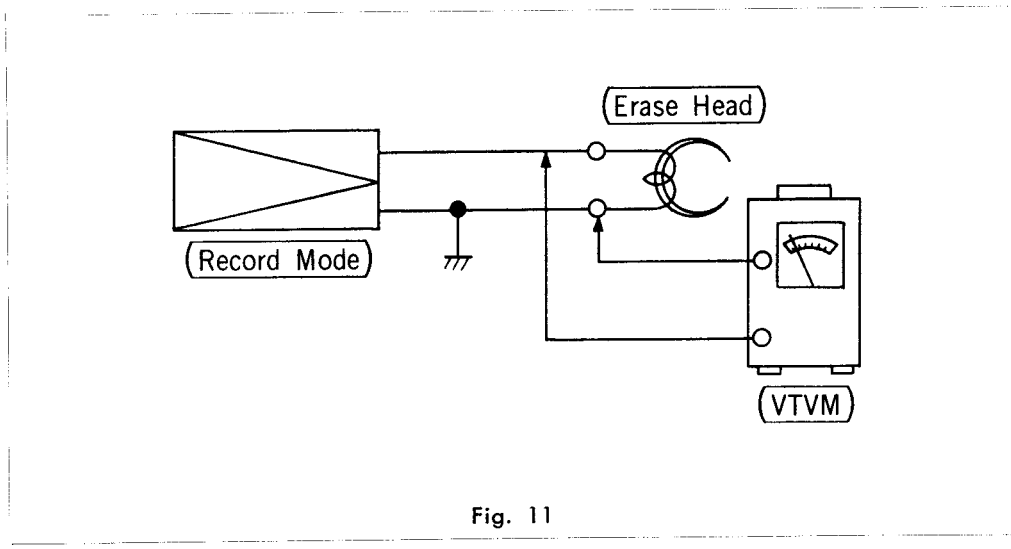


Fig. 11

1. Connect VTVM to Erase Head and measure the voltage value.
2. Standard Erase Voltage=8.5 V is above.

RECORD BIAS CURRENT ADJUSTMENT

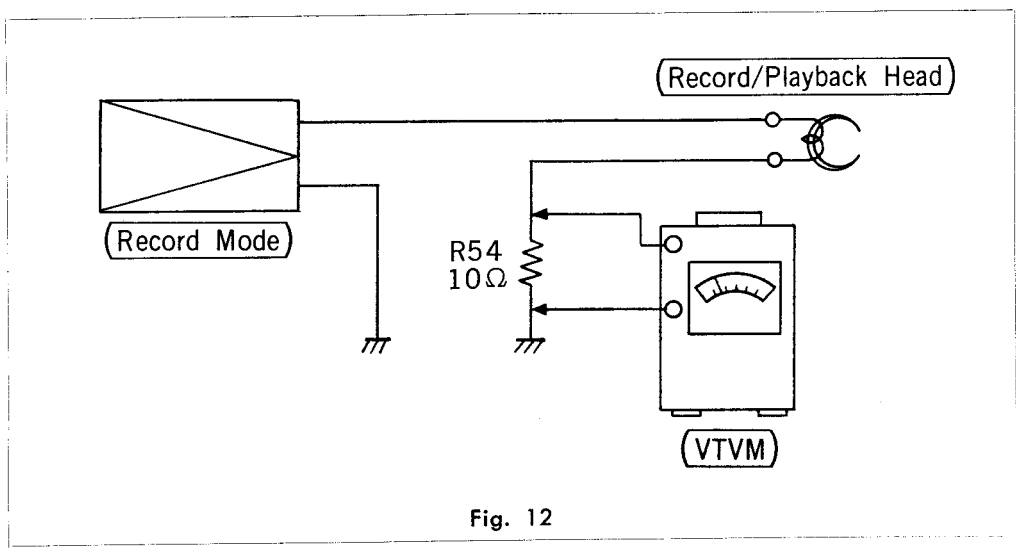


Fig. 12

Instruments Required: VTVM, AF OSC, ATT.
Measuring Circuit: Refer to Fig. 12.

Measuring Method:

1. Connect the ground side Terminal of the Recording Head to the input terminal of VTVM.
2. Place the set into the RECORD mode, and measure the Bias Current supplied to the Record Head by using the VTVM. At this time, keep the Record Level Control at the minimum.
3. The standard Bias Current is 0.45±0.05 mA. If the Current Value is beyond the limits, the value can be kept in the range by adjust the Coil L2.

RECORDING LEVEL

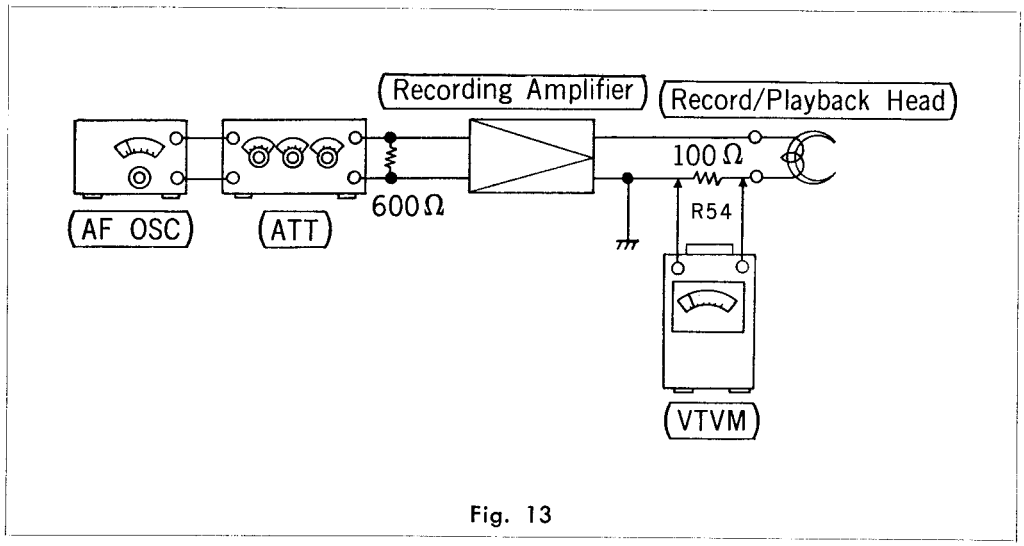


Fig. 13

Instruments Required: AF Oscillator; Attenuator; VTVM; 600Ω resistors.
Measuring Circuit: Refer to Fig. 13.

Set the Tape Recorder in Record mode. Measure the recording level necessary to feed 0.05 mA to the Record Head from the input jack. Adjust the attenuator so that the voltage across the resistor R41 is maintained at 0.5 mV, and confirm if its value is shown as followings.

NOTE: Keep bias oscillation at a stop.

MIC input jack: −70~−64 db.

PLAYBACK GAIN ADJUSTMENT

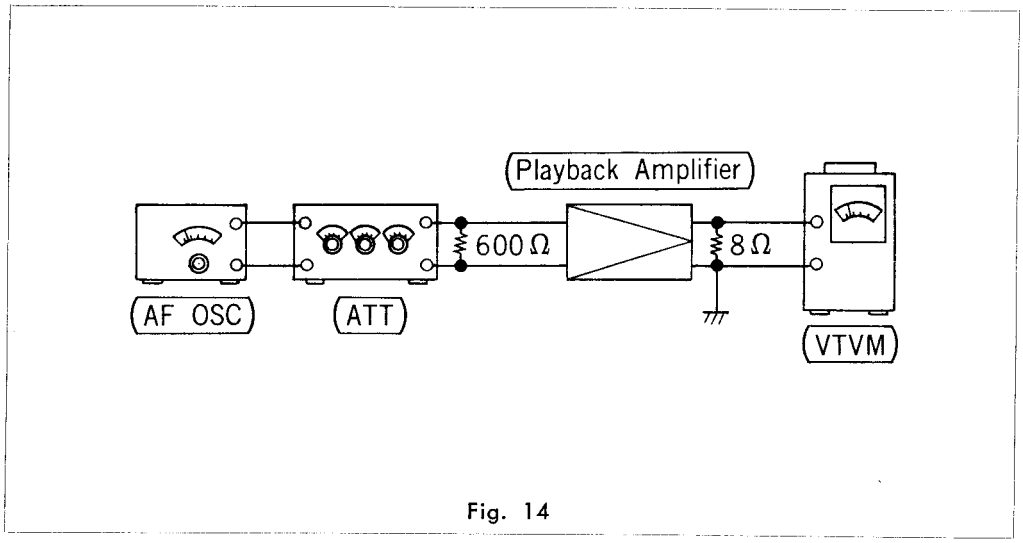


Fig. 14

Instruments Required: VTVM, AF OSC, ATT.
Measuring Circuit: Refer to Fig. 14.

Measuring Method:

1. Supply the input signal of 1 KHz −82~−76 db to the Terminal of the playback Head.
2. Place the set into the PLAYBACK mode, and keep the Playback Volume Control at the maximum.
3. By using VTVM, measure both ends of 8Ω Dummy Resistor connected to the Speaker Terminal.
4. The standard voltage value is 1 V.

REPLACEMENT PARTS LIST

Before you give us an order for parts, please read the following instructions without fail.

1. Parts written in gothic in this Replacement Parts List are always kept in stock in our department, and can therefore be shipped earlier than other parts.
2. Parts written in slender letters are not kept in stock, and will therefore be shipped later. So place an order for them separately.
3. Disassembled parts of Sub Assembly are respectively given a suffix to the Ref. No.
4. Parts other than the above are not available from us.

LISTA DE PIEZAS DE RBPUESTO

Antes de hacernos un peaido de piezas, dígnese leer sin falta las instrucciones siguientes:

1. De las piezas cuyos nombres aparecen escritos con letras góticas en esta Lista de Piezas de Repuesto, tenemos surtido en nuestro departamento, y por lo tanto, podemos enviarlas antes que otras.
2. De las escritas con letras más finas, no tenemos surtido, por lo que su envío se retardará. Por eso, haga el favor de hacer por separado los pedidos.
3. Las piezas demontadas del Sub Assembly llevan respectivamente un sufijo a la Referencia No.
4. No podemos proveer de piezas no mencionadas arriba.

LISTE DES PIÈCES DE RECHANGE

Avant de nous commander des pièces, veuillez lire sans faute les instructions suivantes:

1. Les pièces écrites en grosses lettres dans cette Liste de rechange sont toujours en magasin dans notre section, et pourront donc s'expédier plus vite que les autres pièces.
2. Les pièces écrites en minces lettres ne sont pas en magasin, et s'expédieront plus tard. Passez-nous donc séparément votre commande pour elles.
3. Les pièces désassemblées du Sub Assembly ont chacune un suffixe au Ref. No.
4. D'autres pièces que celles montrées ci-dessus ne sont pas disponibles chez nous.

ERSATZTEILELISTE

Bitte lesen Sie die folgende Anweisung sorgfältig, bevor Sie die Bestellung auf unsere Ersatzteile geben.

1. Die Ersatzteile, die in dieser Liste mit der fetten Schrift geschrieben sind, sind immer in unserer Abtailung als Vorrat befindlich, und sind daher schneller zu liefern als andere Taile.
2. Die Ersatzteile in der dünnen Schrift sind nicht vorrätig und brauchen deshalb einiger Zeit bis zur Lieferung. Bitte geben Sie daher die Bestellung separat für solche Teile.
3. Demontierte Teile der Uterbaugruppe sind je mit Nachsilbe nach dem Referenznummer versehen.
4. Andere Ersatzteile als die obigen sind nicht von uns zu lifefern.

替 換 零 件 名 單

承蒙訂購零件之前、敬請閱讀下列各項.

1. 本名單中用粗字體填記的零件、經常儲存於本公司事業部、因此能比他品更快地發貨。
2. 用細字體記載的零件、沒有存庫、所以發貨時期較慢。敬請另行訂購.
3. 局部裝配組析卸的各零件、則在查詢號碼之後附有接尾字。
4. 本名單沒有記載的零件、則不能供應。

RESISTORS

Ref. No.	Description			Part No.
R1	Carbon Resistor	100 KΩ	1/4 W	ERD14VJ104
R2	Carbon Resistor	270Ω	1/4 W	ERD14VJ271
R3	Carbon Resistor	3.3 KΩ	1/4 W	ERD14TJ332
R4, 24	Carbon Resistor	18 KΩ	1/4 W	ERD14VJ183
R5, 9	Carbon Resistor	2.2 KΩ	1/4 W	ERD14VJ222
R6, 13	Carbon Resistor	6.8 KΩ	1/4 W	ERD14VJ682
R7	Carbon Resistor	33 KΩ	1/4 W	ERD14TJ333
R8, 47	Carbon Resistor	3.9 KΩ	1/4 W	ERD14VJ392
R10, 20, 22, 45	Carbon Resistor	47Ω	1/4 W	ERD14VJ470
R11	Carbon Resistor	4.7 KΩ	1/4 W	ERD14VJ472
R12	Carbon Resistor	5.6 KΩ	1/4 W	ERD14VJ562
R14, 18	Carbon Resistor	1 KΩ	1/4 W	ERD14VJ102
R15	Carbon Resistor	68Ω	1/4 W	ERD14VJ680
R16	Carbon Resistor	10 KΩ	1/4 W	ERD14VJ103
R17	Carbon Resistor	27 KΩ	1/4 W	ERD14VJ273
R19, 44	Carbon Resistor	2.7 KΩ	1/4 W	ERD14VJ272
R21, 23	Carbon Resistor	3.3 KΩ	1/4 W	ERD14VJ332
R25	Carbon Resistor	390Ω	1/4 W	ERD14VJ391
R27	Carbon Resistor	270Ω	1/4 W	ERD14TJ271
R28, 30	Carbon Resistor	15Ω	1/4 W	ERD14VJ150
R29	Carbon Resistor	220Ω	1/4 W	ERD14VJ221
R31	Carbon Resistor	180Ω	1/4 W	ERD14VJ181
R32, 48, 52 ...	Carbon Resistor	10Ω	1/4 W	ERD14VJ100
R33, 34	Wire-wound Resistor	0.047Ω		ERM12PKR47
R35	Carbon Resistor	25 KΩ	1/4 W	ERD14TJ253
R36	Carbon Resistor	1 KΩ	1/4 W	ERD14TJ102
R37, 38	Carbon Resistor	820Ω	1/4 W	ERD14VJ821
R39, 40	Solid Resistor	10Ω	1/2 W	ERD12GK100
R42	Carbon Resistor	22 KΩ	1/4 W	ERD14VJ223
R43	Carbon Resistor	560Ω	1/4 W	ERD14VJ561
R46	Carbon Resistor	680Ω	1/4 W	ERD14VJ681
R49	Carbon Resistor	15 KΩ	1/4 W	ERD14VJ153
R50	Carbon Resistor	8.2 KΩ	1/4 W	ERD14VJ822
R51	Carbon Resistor	1.5 KΩ	1/4 W	ERD14VJ152
R53	Carbon Resistor	100Ω	1/4 W	ERD14VJ101
R54	Carbon Resistor	10Ω	1/4 W	ERD14TJ100

VARIABLE RESISTORS

Ref. No.	Description		Part No.
VR1	Variable Resistor	5 KΩ (C)	EVHB0AL20C53
VR2	Variable Resistor	10 KΩ (C)	EVHB0AL200C14

CAPACITORS

C1, 3	Electrolytic Capacitor	10μF	ECEA6V10N
C2, 11	Electrolytic Capacitor	33μF	ECEA6V33N
C4, 9, 10, 14	Electrolytic Capacitor	3.3μF	ECEA16V3R3N
C5	Mylar Capacitor	0.033μF	ECQM05333KZ
C6	Mylar Capacitor	0.0015μF	ECQM05152KZ
C7	Mylar Capacitor	0.001μF	ECQM05102KZ
C8, 32, 34, 35	Electrolytic Capacitor	100μF	ECEA10V100N
C12	Aluminum Capacitor	0.47μF	ECAG25E0R47
C13	Aluminum Capacitor	0.1μF	ECAG25E0R1
C15	Electrolytic Capacitor	100μF	ECEA6V100N
C17	Electrolytic Capacitor	470μF	ECEA10V470N
C18	Electrolytic Capacitor	1000μF	ECEA10V1000N
C19	Mylar Capacitor	0.01μF	ECQM05682MZ
C20	Electrolytic Capacitor	1000μF	ECEA6V1000N
C21	Aluminume Capacitor	1μF	ECAG10E1
C23	Mylar Capacitor	0.0022μF	ECQM05222MZ
C24, 25	Electrolytic Capacitor	220μF	ECEA6V220N
C26	Styrol Capacitor	390 pF	ECQS02391KZ
C27	Electrolytic Capacitor	1000μF	ECEA16V1000N
C28	Mylar Capacitor	0.015μF	ECQM05153MZ
C29	Mylar Capacitor	0.022μF	ECQM05223MZ
C30	Styrol Capacitor	0.0018μF	ECQS2391KZ
C31	Mylar Capacitor	0.056μF	ECQM05563KZ
C33	Mylar Capacitor	0.1μF	ECQM05104KZ
C36	Electrolytic Capacitor	33μF	ECEA16V33
C37	Mylar Capacitor	0.0056μF	ECQM05562MZ

TRANSISTORS

Tr1	Transistor	2SB346
Tr2, 3, 4	Transistor	2SB175B
Tr5, 6, 7, 8	Transistor	2SB324 (G.H.I.J.K.L)
Tr9	Transistor	2SB172A

DIODES & RECTIFIER

D1	Diode	OA81
D2, 3	Diode	OA70
D5	Silicon Rectifier	1S1850R

THERMISTOR

TH1, 2	Thermistor	QVM300A

TRANSFORMERS & COIL

T1	Input Transformer	QLA0123
T2	Oscillator Transformer	QLB0137
T3	Power Transformer with AC Cord	QLP0471
L1	High Frequency Choke Coil	ELT10S921

SWITCHES

S1	Record/Playback Selector Switch	QSS1075S
S2	AC/DC Selector Switch (Relay)	QSK0114
S3	Power Switch	QSB0145
S4	Sound Monitor Switch	QSS1081
S5	Motor ON/OFF Switch	QSS1080
S6	Stop Switch	QSB0145
S7	AC Voltage Selector Switch	QSS1061
S8	Relay	QSK0117

ELECTRICAL PARTS

E1	Record/Playback Head	WY028Z
E2	Erase Head	WY223Y
E3	VU Meter	QSL0049A

Ref. No.	Description	Part No.
E4	**Speaker**	**EAS10P70S**
E5	**Remote Jack**	**QJA0413**
E6	**M3 Jack**	**QJA0112**
E7	**Jack for Car Bracket**	**QJA0221**
E8	**Cord Bushing**	**QTD1126A**
E9	**Jack Plate**	**QGJ1122**
E10	**Volume Knob Assembly**	**QYT0106**
E11	**Tone Control Knob Assembly**	**QYT0107**
E12	**Lug Terminal**	**QJT0015**
E13	**Cord Cramp**	**QTD1002**
E14	**Record Operation Lever**	**QML1698**
E15	**Slide Switch Spring**	**QBP1144**
E16	**Record Lever Guide**	**QMP1101**
E17	**Record Spring**	**QBT1366**
E18	**AC Power Cord**	**QFC1041**

MECHANICAL PARTS

M1	**Tape Counter**	**QDC0033**
M2	Tape Counter Holding Plate	QMH1092S
M3	Lead Wire Cramper	QMH1093
M4	**Spring Washer SW3ϕ**	**XWA3B**
M5	**Screw ⊕3×6**	**XSN3+65**
M6	**Screw ⊕2.6×6**	**QHQ1132**
M7	**Stop Ring E3ϕ**	**XUC3FK**
M8	**Head Slide Lever Spring**	**QBN1092**
M9	**Fiber Washer 4.2×6×1**	**QBK7128**
M10	**Ball Pressure Spring**	**QBP1192**
M11	**Spring Retainer**	**QMF1313**
M12	**Head Slide Lever**	**QML1685**
M13	**Vinyl Tube**	**QLT030V×07**
M14	**Steel Ball 3ϕ**	**QDK1006**
M15	**Fast Forward Lever Spring-2**	**QBT1395**
M16	**Lead Wire Cramper-B**	**QMH1094**
~~M17~~	~~Screw ⊕2×6~~	~~XSN2+6~~
M18	**Screw ⊕2×8**	**XSN2+8**
M19	**Erase Head Spacer**	**QMF1314**

Ref. No.	Description	Part No.
M20	**Flat Washer 2ϕ**	**XWG2**
M21	**Head Adjustment Spring**	**QBC1127**
M22	**Record/Playback Head Spacer**	**QMP1202**
M23	Head Holding Plate	QMF1320
M24	**Stop Ring E1.5ϕ**	**XUC15FK**
M25	**Washer**	**QBJK0015**
M26	**Pressure Roller Assembly**	**QXP0198**
M27	Stop Ring E3ϕ	XUC3FK
M28	**Record Cooperation Lever-1 Assembly**	**QXL0292**
M29	Fast Forward Cooperation Lever-2 Assembly	QMF1316
M30	**Stop Ring E2ϕ**	**XUC2FK**
M31	**Fiber Washer 3.2×9×1**	**QBK7126**
M32	**Fiber Washer 3.2×9×0.5**	**QBK7124**
M33	**Pressure Roller Spring**	**QBN1091**
M34	**Tapping Screw ⊕2.6×6**	**XTB26+6**
M35	Spring Hook Plate Assembly	QXH0055
M36	Base Plate Moving Lever Left Assembly	QXL0293
M37	Stop Ring E3ϕ	XUC3FK
M38	Base Plate Fixing Lever	QML1588
M39	**Base Plate Fixing Lever Spring**	**QQN1068**
M40	Base Plate Moving Lever Right Assembly	QXL0294
M41	**Screw ⊕2.6×20**	**XSN26+20**
M42	**Stop Spring**	**QBT1398M**
M43	**Lug Terminal**	**QJT0015**
M44	**Cassette Guide-2**	**QBJ3078**
M45	**Cassette Guide-1**	**QBJ3077**
M46	Stop Ring E1.5ϕ	XUC15FK
M47	**Cassette Lid Spring**	**QBN1096**
M48	Cassette Lid Shaft	QMS1555
M49	**Cassette Lid**	**QML1697**
M50	Reinforce Plate-1	QMA1343
M51	**Pole**	**QMP1188**
M52	Record Button Lever-2 Assembly	QXL0289
M53	Stop Ring E3ϕ	XUC3FK
M54	**Record Button Lever-1 Assembly**	**QXL0286**
M55	**Record Button Lever Spring-1**	**QBT1375M**

Ref. No.	Description	Part No.
M56	***Nut N2.6φ***	**XSN26E**
M57	**Spring Washer SW2.6φ**	**XWA3B**
M58	Spring Hanger	QMA1341
M59	**Record Lock Spring**	**QBN1095**
M60	Record Lock Lever	QML1684
M61	**Screw ⊕2.6×14**	**XSN26+14**
M62	Spring Washer SW2.6φ	XWA26B
M63	**Flat Washer 3φ**	**XWG3**
M64	**Guide Ring-2**	**QMP1207**
M65	**Screw ⊕3×10**	**XSN3+10S**
M66	Spring Washer SW3φ	XWA3B
M67	Flat Washer 3φ	XWG3
M68	**Pipe-3**	**QMP1147**
M70	Reinforce Plate-2	QMA1344S
M71	**Tapping Screw ⊕3×8**	**XTB3+8**
M72	Stop Ring E3φ	XUC3FK
M73	**Fiber Washer 4.2×9×0.5**	**QBK7005**
M74	Rewind Lever-2 Assembly	QXL0290
M75	Stop Ring E2φ	XUC3FK
M76	Fiber Washer 3.2×9×0.5	QBK7124
M77	Fast Forward Cooperation Lever Assembly	QXL0291
M78	Takeup Release Lever	QML1680
M79	**Stop Lever**	**QML1683**
M80	**Rewind Lever Spring-1**	**QBT1376M**
M81	Slide Plate Assembly	QXL0298
M82	Fiber Washer 3.2×9×1	QBK7126
M83	**Rewind Button Lever Assembly**	**QXL0285**
M84	**Stop Button Lever Assembly**	**QXL0287**
M85	**Fast Forward Button Lever Assembly**	**QXL0288**
M86	Stop Ring E2φ	XUC2FK
M87	**Lock Roller**	**QBJ1404**
M88	Lock Lever	QML1696
M89	**Lock Lever Spring**	**QBC1133**
M90	Stop Ring E3φ	XUC3FK
M91	Fiber Washer 4.2×9×0.5	QBK7005
M92	**Takeup Lever**	**QBJ3080**
M93	**Takeup Idler Rod Assembly**	**QXM0053**

Ref. No.	Description	Part No.
M93-1	Stop Ring E2φ	XUC2FK
M93-2	**Washer-3**	**QBJ3099**
M93-3	**Idler**	**QXI0031**
M94	**Takeup Idler Spring**	**QBT1374**
M95	**Cassette Pressure Pin**	**QYQ0107**
M96	**Cassette Pressure Spring**	**QBC1119**
M97	Stop Ring E1.5φ	XUC15FK
M98	Screw ⊕3×6	XSN3+6S
M99	Spring Washer SW3φ	XWA3B
M100	Stop Ring E2φ	XUC2FK
M101	Washer-3	QBJ3099
M102	**Connection Pulley**	**QBJ3091**
M103	**Tape Counter Belt-2**	**QDB0110**
M104	**Tape Counter Belt-3**	**QDB0111**
M105	Tapping Screw ⊕2.6×6	XTB26+6
M106	**Motor Assembly**	**QDM0936**
M107	**Motor Pulley Assembly**	**QXP0265**
M107-1	**Screw ⊕2.6×4**	**XSN26+4**
M108	**Capstan Belt**	**QDB0107**
M109	Stop Ring E3φ	XUC3FK
M110	**Fiber Washer 4.2×12×0.5**	**QBK7004**
M111	**Fast Forward Lever Spring**	**QBN1101**
M112	Fast Forward Lever-1	QBJ3079
M113	Stop Ring E1.5φ	XUC15FK
M114	Stop Ring E2φ	XUC2FK
M115	Washer-3	QBJ3099
M116	**Idler Assembly**	**QXI0031**
M117	**Fast Forward Lever-2 Assembly**	**QXL0295**
M118	Tapping Screw ⊕2.6×6	XTB26+6
M119	Flywheel Metal Retainer	QMF1317
M120	**Steel Ball 3φ**	**QDK1006**
M121	Flywheel Metal	QBJ3082
M122	**Flywheel Retainer Assembly**	**QXH0056**
M123	Screw ⊕2.6×6	QHQ1125
M124	**Flywheel Assembly**	**QXF0047**
M125	**Washer-2**	**QBJ3098**
M126	**Oil Ceal**	**QBJ3104**

Ref. No.	Description	Part No.
M128	**Plunger**	**QME0119S**
M129	Stop Ring E2ϕ	XUC2FK
M130	Washer (2)	QBJ3099
M131	Rewind Pulley	QBJ3089
M132	**Rewind Lever Assembly**	**QXL0290**
M133	**Rewind Roller Spring**	**QBT1391**
M134	**Rewind Belt**	**QDB0108**
M135	Stop Ring E1.5ϕ	XUC15FK
M136	Washer	QBJK0015
M137	**Supply Reel Table Assembly**	**QXP0263**
M138	**Fiber Washer 2.2×6×0.5**	**QBK7111**
M139	**Takeup Reel Table Assembly**	**QXP0262**
M140	**Tape Counter Belt-1**	**QDB0109**
M141	**Rubber Cushion**	**QBG1147**
M142	Reel Table Base Plate Assembly	QXK1142
M143	**Rotation Switch Assembly**	**QES1089**
M144	Screw ⊕2×8	XSN2+8

CABINET PARTS

G1	**Main Body Case Assembly**	**QYB0177**
G1-1	**Handle Assembly**	**QYH0022**
G2	**Bottom Case Assembly**	**QYC0091**
G2-1	**Battery Spring**	**QJB0016**
G2-2	**Battery Terminal (+)**	**QJB0042**
G3	**Battery Cover Assembly**	**QYF0059**
G4	**Screw ⊕PH3×8**	**XSN3+8RS**
G5	**Screw ⊕PH3×25**	**XSN3+25BVS**
G6	**Screw ⊕PH3×10**	**XSN3+10S**

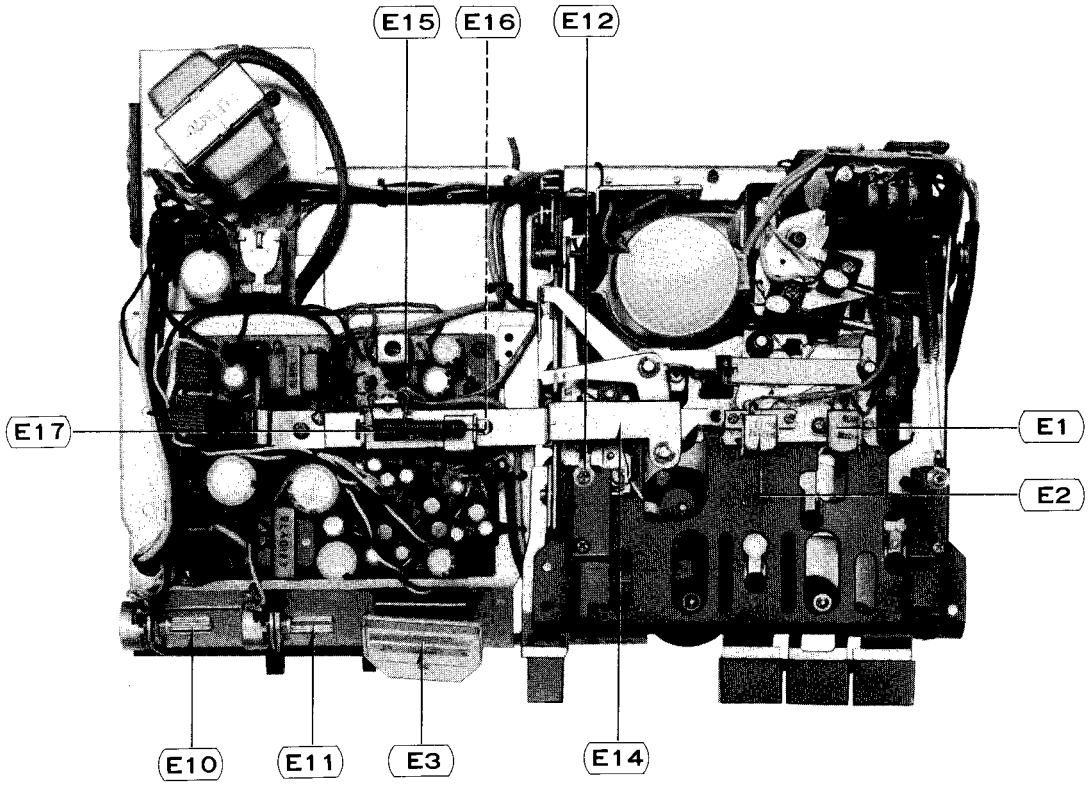
ACCESSORIES

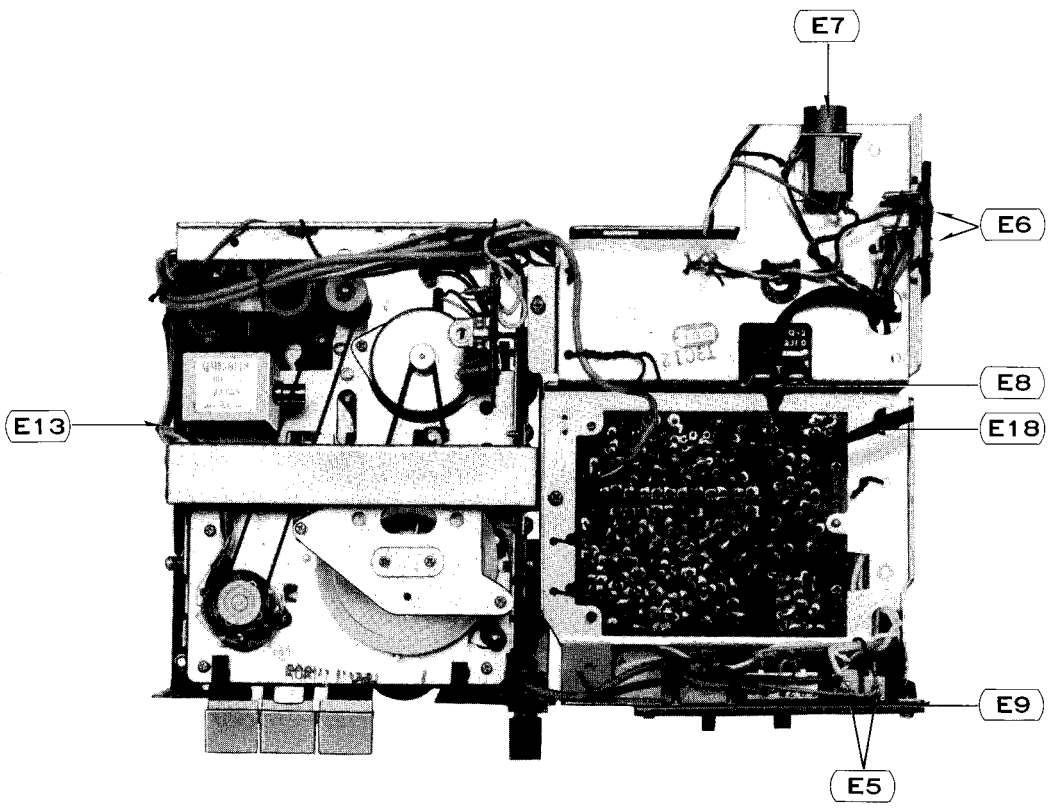
A1	**Dynamic Microphone**	**WM2213N**
A2	**Microphone Stand**	**WN123N**
A3	**Cassete Tape**	**QFT10SSNR90Z**
A4	**Radio Cord-R**	**QEB17P**
A5	**Earphone**	**EAE2SB1**
A6	**Plug Adaptor-B**	**QJP0601**
A7	**Instruction Book**	**QQT1187**

PACKINGS

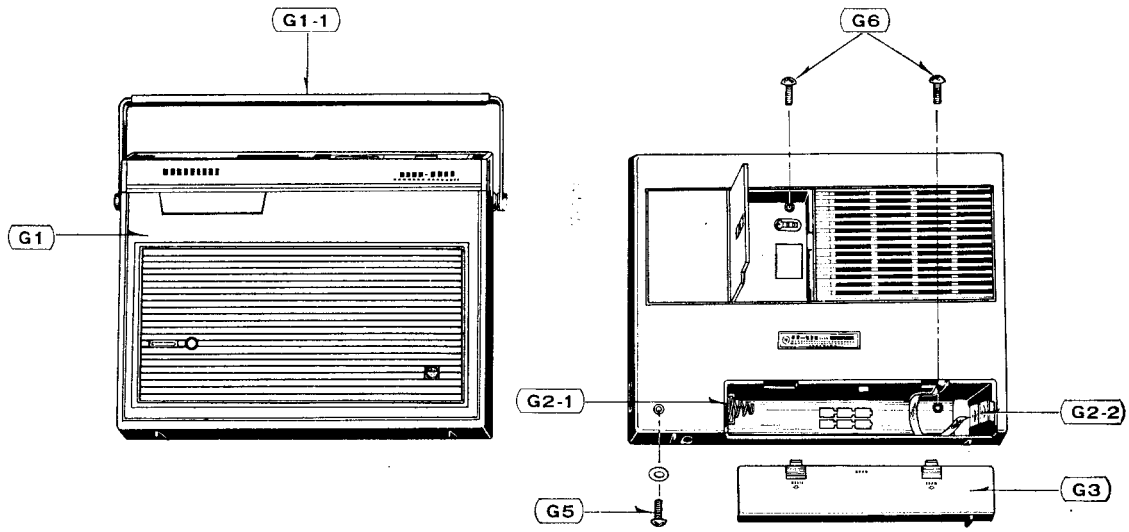
P1	**Inner Packing**	**QPN1911**
P2	Inner Cushion-A	QPN1887
P3	Inner Cushion-B	QPN1888
P4	Accessory Box	QPN1912
P5	Dust Cover	QFD0108

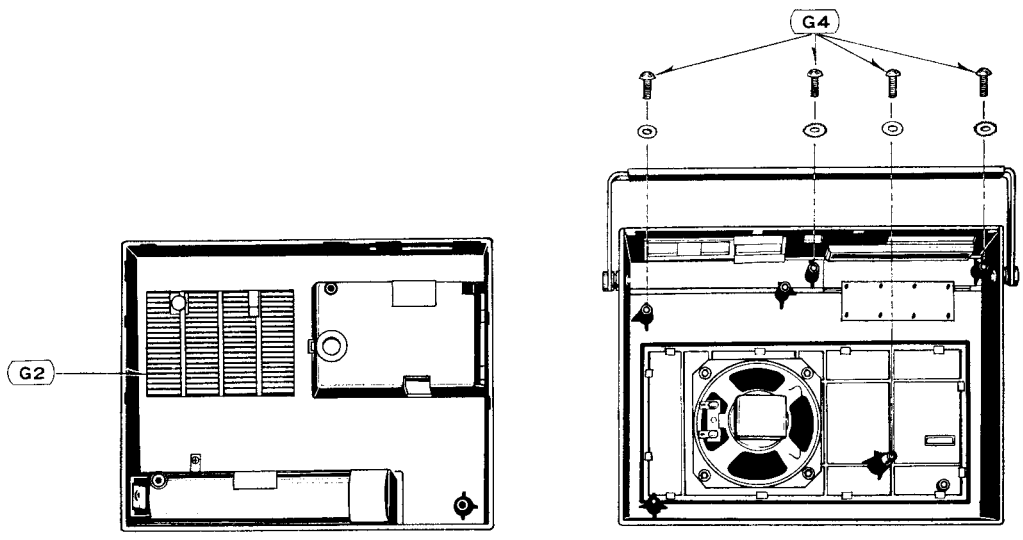
ELECTRICAL PARTS LOCATION





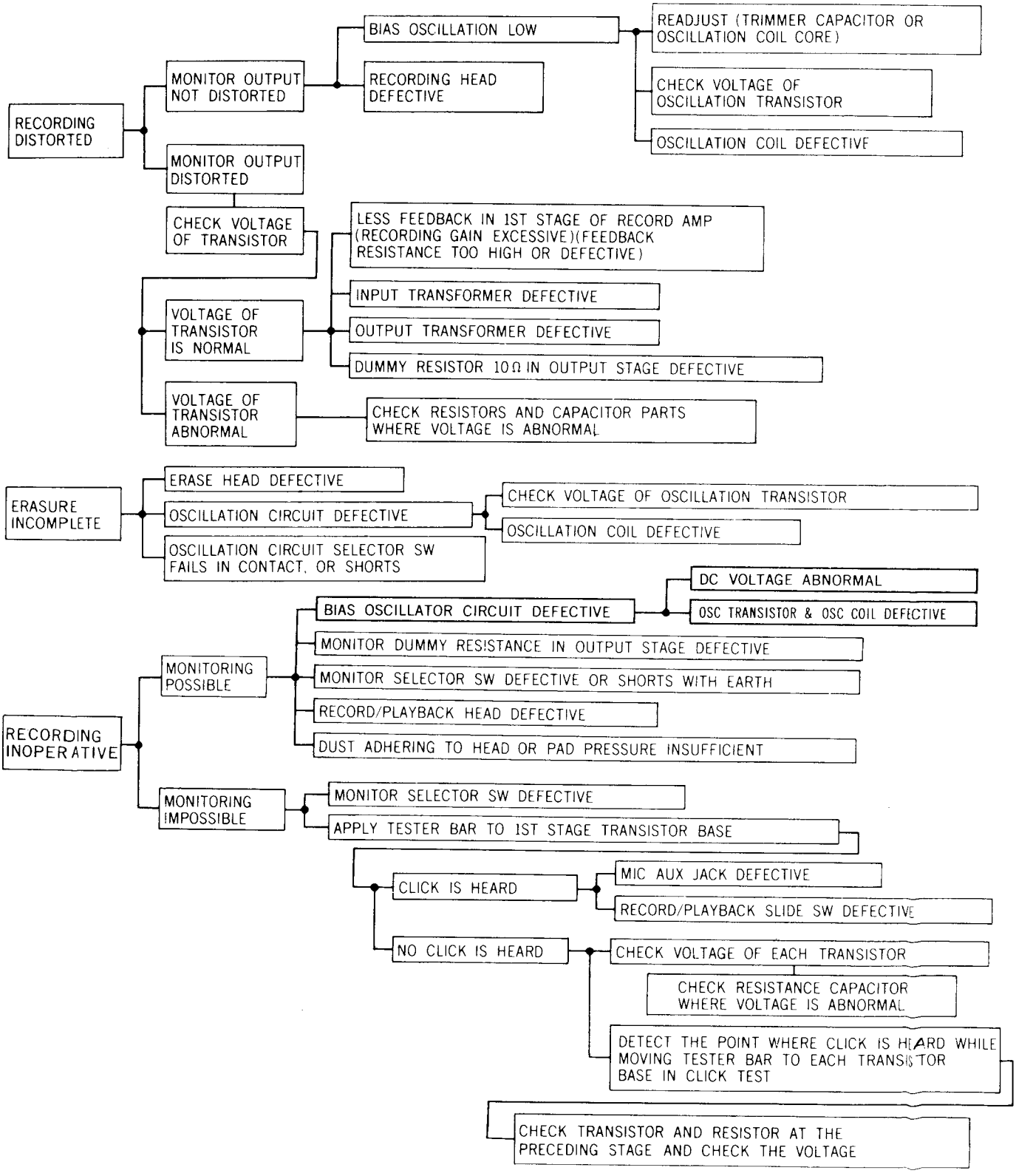
CABINET PARTS





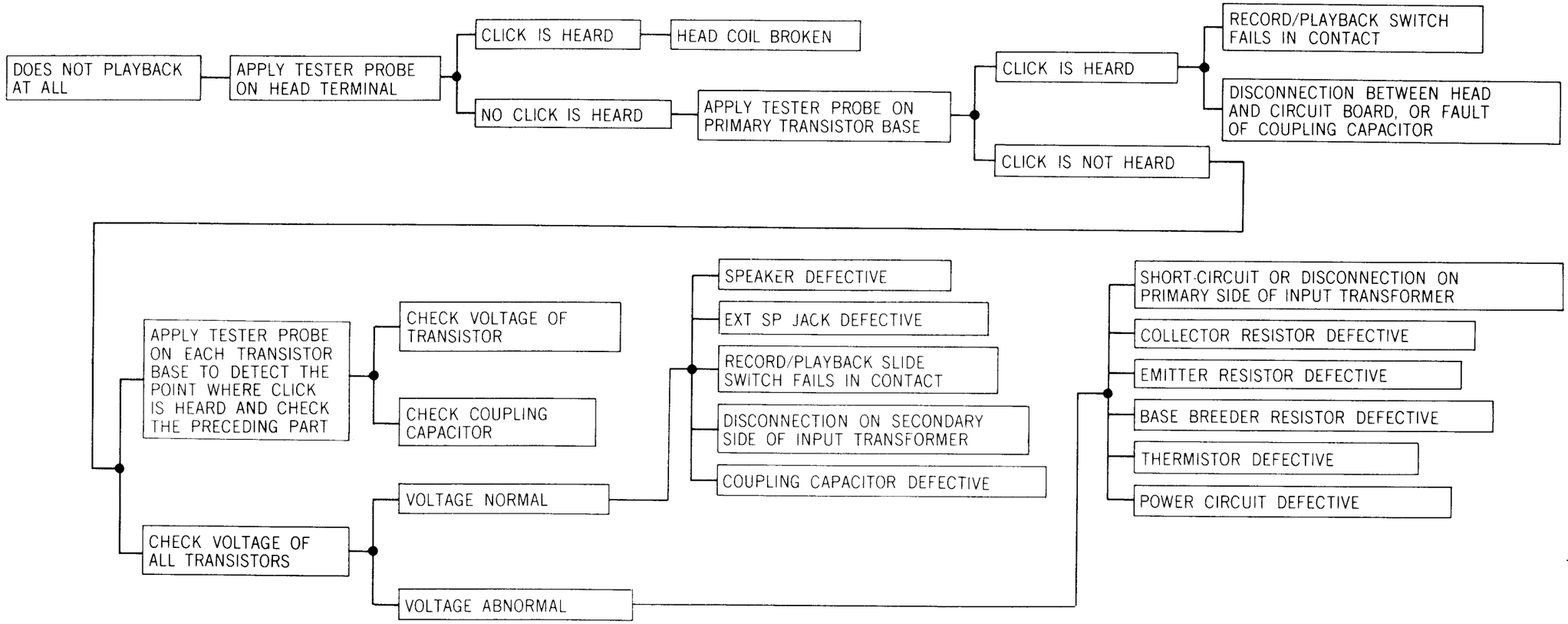
TROUBLE SHOOTING GUIDE 1

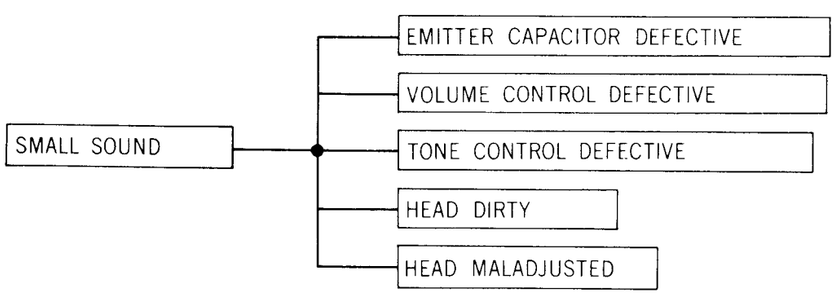
DEFECTIVE RECORDING CIRCUIT

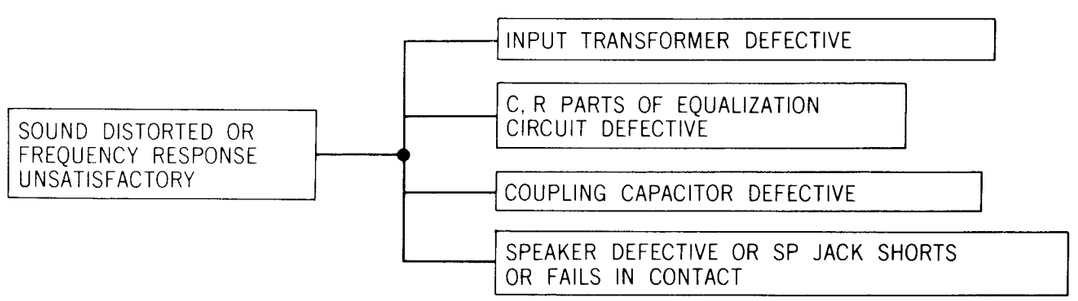

RECORDING DISTORTED
MONITOR OUTPUT NOT DISTORTED
BIAS OSCILLATION LOW
READJUST (TRIMMER CAPACITOR OR OSCILLATION COIL CORE)
RECORDING HEAD DEFECTIVE
CHECK VOLTAGE OF OSCILLATION TRANSISTOR
OSCILLATION COIL DEFECTIVE
MONITOR OUTPUT DISTORTED
CHECK VOLTAGE OF TRANSISTOR
LESS FEEDBACK IN 1ST STAGE OF RECORD AMP (RECORDING GAIN EXCESSIVE)(FEEDBACK RESISTANCE TOO HIGH OR DEFECTIVE)
VOLTAGE OF TRANSISTOR IS NORMAL
INPUT TRANSFORMER DEFECTIVE
OUTPUT TRANSFORMER DEFECTIVE
DUMMY RESISTOR 10Ω IN OUTPUT STAGE DEFECTIVE
VOLTAGE OF TRANSISTOR ABNORMAL
CHECK RESISTORS AND CAPACITOR PARTS WHERE VOLTAGE IS ABNORMAL
ERASURE INCOMPLETE
ERASE HEAD DEFECTIVE
OSCILLATION CIRCUIT DEFECTIVE
CHECK VOLTAGE OF OSCILLATION TRANSISTOR
OSCILLATION COIL DEFECTIVE
OSCILLATION CIRCUIT SELECTOR SW FAILS IN CONTACT, OR SHORTS
RECORDING INOPERATIVE
MONITORING POSSIBLE
DC VOLTAGE ABNORMAL
BIAS OSCILLATOR CIRCUIT DEFECTIVE
OSC TRANSISTOR & OSC COIL DEFECTIVE
MONITOR DUMMY RESISTANCE IN OUTPUT STAGE DEFECTIVE
MONITOR SELECTOR SW DEFECTIVE OR SHORTS WITH EARTH
RECORD/PLAYBACK HEAD DEFECTIVE
DUST ADHERING TO HEAD OR PAD PRESSURE INSUFFICIENT
MONITORING IMPOSSIBLE
MONITOR SELECTOR SW DEFECTIVE
APPLY TESTER BAR TO 1ST STAGE TRANSISTOR BASE
CLICK IS HEARD
MIC AUX JACK DEFECTIVE
RECORD/PLAYBACK SLIDE SW DEFECTIVE
NO CLICK IS HEARD
CHECK VOLTAGE OF EACH TRANSISTOR
CHECK RESISTANCE CAPACITOR WHERE VOLTAGE IS ABNORMAL
DETECT THE POINT WHERE CLICK IS HEARD WHILE MOVING TESTER BAR TO EACH TRANSISTOR BASE IN CLICK TEST
CHECK TRANSISTOR AND RESISTOR AT THE PRECEDING STAGE AND CHECK THE VOLTAGE

TROUBLE SHOOTING GUIDE 2

DEFECTIVE PLAYBACK CIRCUIT


DOES NOT PLAYBACK AT ALL
APPLY TESTER PROBE ON HEAD TERMINAL
CLICK IS HEARD
HEAD COIL BROKEN
NO CLICK IS HEARD
APPLY TESTER PROBE ON PRIMARY TRANSISTOR BASE
CLICK IS HEARD
RECORD/PLAYBACK SWITCH FAILS IN CONTACT
DISCONNECTION BETWEEN HEAD AND CIRCUIT BOARD, OR FAULT OF COUPLING CAPACITOR
CLICK IS NOT HEARD
APPLY TESTER PROBE ON EACH TRANSISTOR BASE TO DETECT THE POINT WHERE CLICK IS HEARD AND CHECK THE PRECEDING PART
CHECK VOLTAGE OF TRANSISTOR
CHECK COUPLING CAPACITOR
CHECK VOLTAGE OF ALL TRANSISTORS
VOLTAGE NORMAL
VOLTAGE ABNORMAL
SPEAKER DEFECTIVE
EXT SP JACK DEFECTIVE
RECORD/PLAYBACK SLIDE SWITCH FAILS IN CONTACT
DISCONNECTION ON SECONDARY SIDE OF INPUT TRANSFORMER
COUPLING CAPACITOR DEFECTIVE
SHORT-CIRCUIT OR DISCONNECTION ON PRIMARY SIDE OF INPUT TRANSFORMER
COLLECTOR RESISTOR DEFECTIVE
EMITTER RESISTOR DEFECTIVE
BASE BREEDER RESISTOR DEFECTIVE
THERMISTOR DEFECTIVE
POWER CIRCUIT DEFECTIVE




SOUND DISTORTED OR FREQUENCY RESPONSE UNSATISFACTORY
INPUT TRANSFORMER DEFECTIVE
C, R PARTS OF EQUALIZATION CIRCUIT DEFECTIVE
COUPLING CAPACITOR DEFECTIVE
SPEAKER DEFECTIVE OR SP JACK SHORTS OR FAILS IN CONTACT

TROUBLE SHOOTING GUIDE 3

DEFECTIVE MECHANISM

A

- TAPE DOES NOT RUN IN PLAY OR REC MODE
  - NO PLAY LOCK MODE THOUGH CASSETTE IS PUSHED IN
    - LOCK LEVER "B" DEFECTIVE
  - PLAY LOCK MODE WHEN CASSETTE IS PUSHED IN
    - MOTOR DOES NOT ROTATE
      - S3, S8 DEFECTIVE
    - MOTOR ROTATES
      - CAPSTAN ROTATES
        - TAKEUP REEL TABLE DOES NOT ROTATE
        - PRESSURE OF PRESSURE ROLLER INSUFFICIENT
        - PRESSURE ROLLER DIRTY
        - CAPSTAN DIRTY
        - DOES NOT COME IN TOUCH WITH HEAD TAPE
          - PRESSURE OF SPRING TO PRESS HEAD HOLDING PLATE INSUFFICIENT
      - CAPSTAN DOES NOT ROTATE
        - CAPSTAND BELT OFF
        - MOTOR PULLEY DIRTY
        - MOTOR PULLEY HOLDING SCREW LOOSE
        - CAPSTAN BURNT
        - FLYWHEEL & BELT CONTACT SURFACE DIRTY
      - TAKEUP REEL TABLE DOES NOT ROTATE
        - TAKEUP TABLE DIRTY
        - TAKEUP IDLER PRESSURE INSUFFICIENT
          - TAKEUP IDLER SPRING WEAK OR GETTS OFF
        - TAKEUP IDLER DIRTY
        - TAKEUP TENSION OF TAKEUP REEL TABLE INSUFFICIENT
          - REINFORCE FRICTION SPRING WITH WASHER

B

- CASSETTE DOES NOT RETURN THOUGH STOP BUTTON IS DEPRESSED
  - STOP SPRING WEAK
    - STRENGTHEN SPRING
  - GUIDE ROLLERS ON BOTH SIDES OF BASE PLATE MOVING LEVER
    - APPLY GREASE
  - STOP LEVER AND STOP BUTTON LEVER BENT
  - LOCK LEVER AND LOCK PIN BURNT
    - APPLY GREASE TO LOCK PIN

C

- FAST FORWARD ABNORMAL
  - MOTOR DOES NOT ROTATE
  - MOTOR ROTATES
    - FF BELT OFF
    - FF IDLER DIRTY
    - KNURLED SURFACE OF FLYWHEEL DIRTY
      - FF LEVER SPRING WEAK
    - PRESSURE OF F.F.IDLER INSUFFICIENT
    - F F PULLEY DIRTY
    - REEL TABLE DIRTY

D

REWIN

S3, S8
DEFECTIVE

E OF SPRING TO
EAD HOLDING
SUFFICIENT

OLER SPRING
GETTS OFF

E FRICTION SPRING
HER

B

CASSETTE DOES NOT RETURN THOUGH STOP BUTTON IS DEPRESSED

- STOP SPRING WEAK — STRENGTHEN SPRING
- GUIDE ROLLERS ON BOTH SIDES OF BASE PLATE MOVING LEVER — APPLY GREASE
- STOP LEVER AND STOP BUTTON LEVER BENT
- LOCK LEVER AND LOCK PIN BURNT — APPLY GREASE TO LOCK PIN

C

FAST FORWARD ABNORMAL

- MOTOR DOES NOT ROTATE
- MOTOR ROTATES
  - FF BELT OFF
  - FF IDLER DIRTY
  - KNURLED SURFACE OF FLYWHEEL DIRTY — FF LEVER SPRING WEAK
  - PRESSURE OF F.F.IDLER INSUFFICIENT
  - F F PULLEY DIRTY
  - REEL TABLE DIRTY

D

REWINDING ABNORMAL

- MOTOR DOES NOT ROTATE
- MOTOR ROTATES
  - TENSION OF REW LEVER SPRING INSUFFICIENT
  - REEL TABLE DIRTY
  - REWIND BELT OFF
  - REWIND PULLEY DIRTY
  - KNURLED SURFACE OF FLYWHEEL DIRTY

E

AUTOMATIC STOP INOPERATIVE

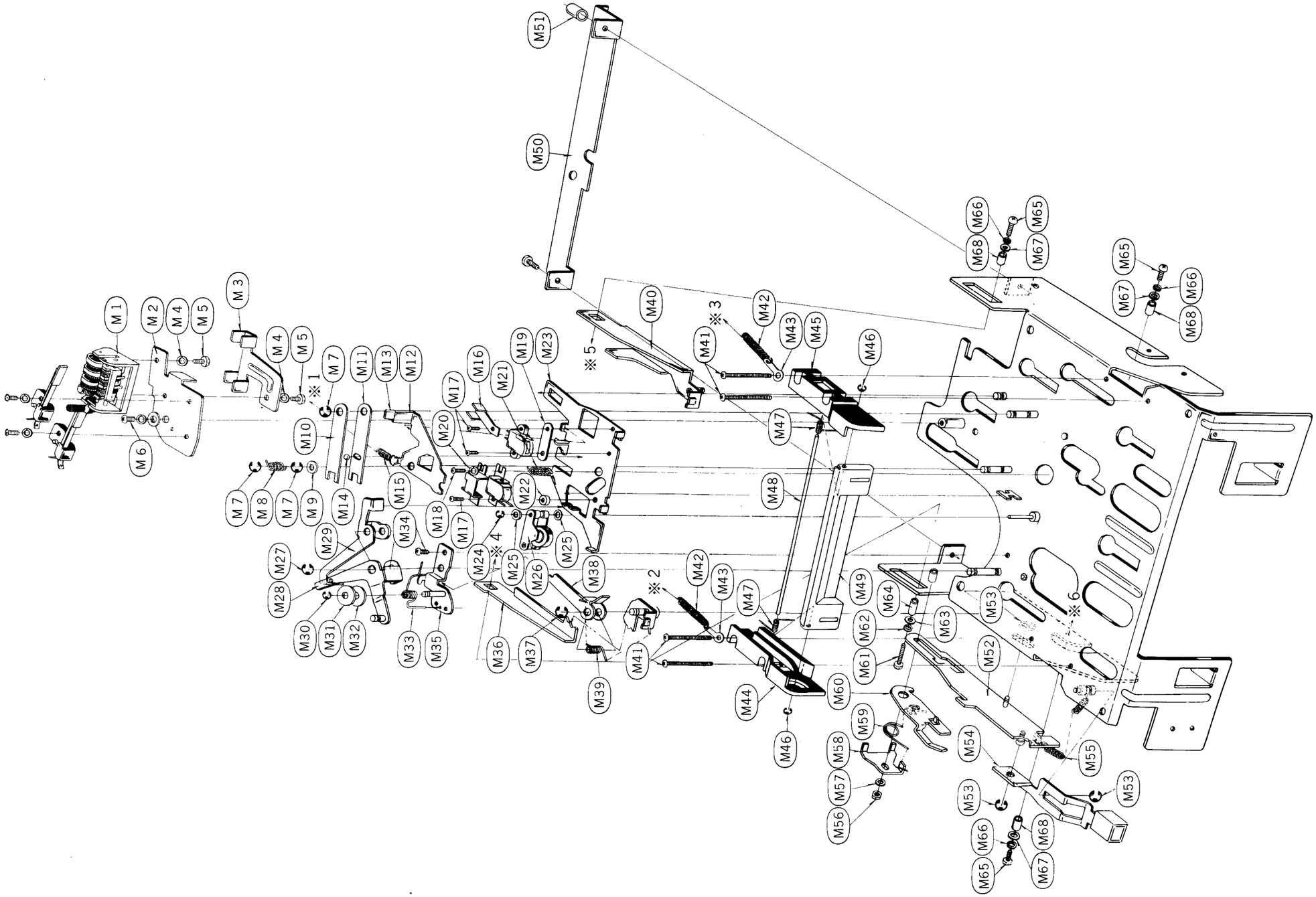
- AUTOMATIC STOP OPERATIVE
  - TAPE LOOSE ON SUPPLY SIDE
  - TRANSISTOR Tr8 & ROTATION SWITCH DEFECTIVE
- AUTOMATIC STOP INOPERATIVE WHILE TAPE IS AT A STOP
  - PLUNGER DEFECTIVE
  - ROTATION SWITCH DEFECTIVE
  - Tr8, Tr9 DEFECTIVE
  - LEAD WIRE BROKEN

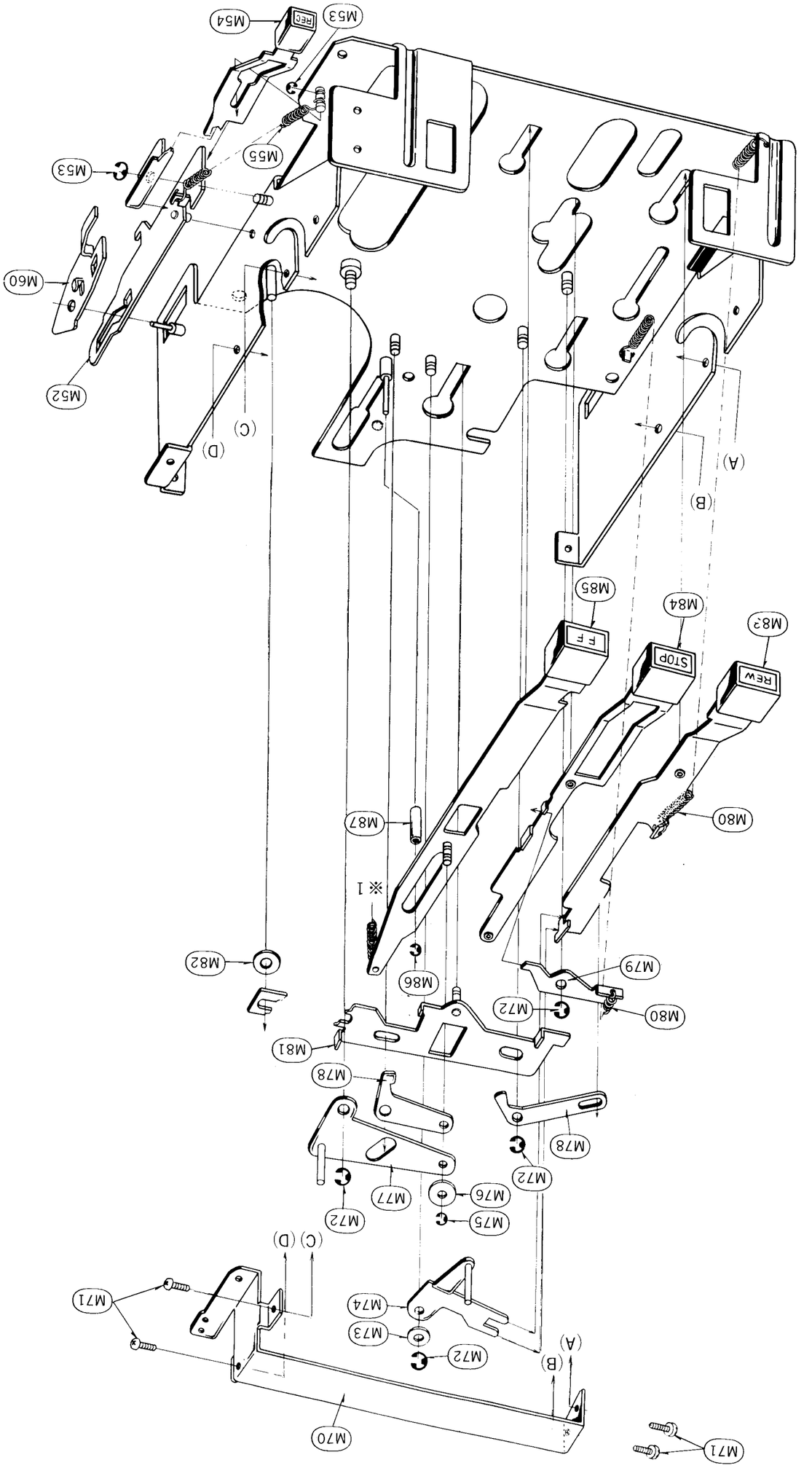
F

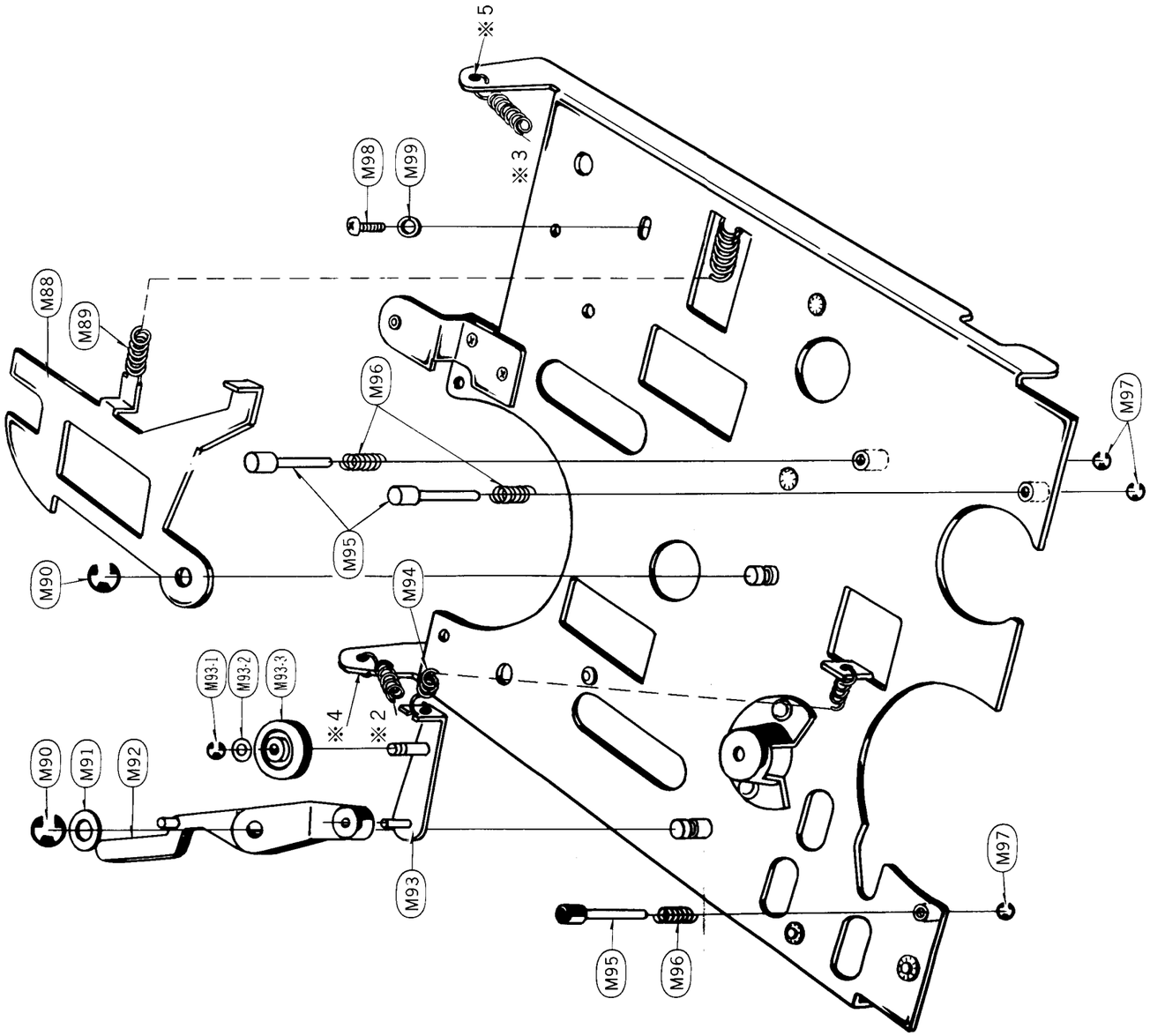
DOES NOT COUNT

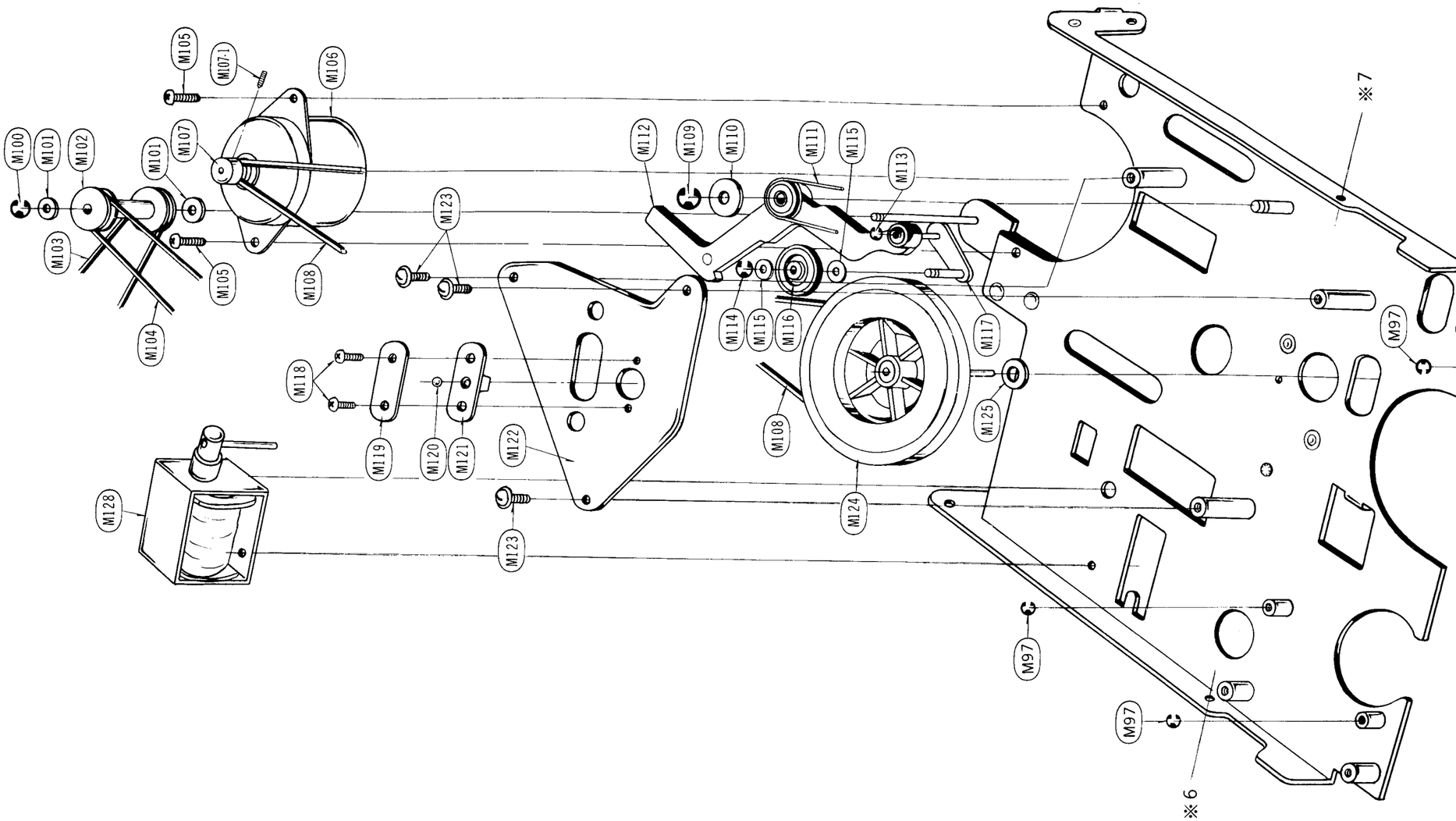
- COUNTER GEAR BROKEN
- COUNTER BELT OFF OR BROKEN
- RELAY PULLEY SHAFT BURNT
- COUNTER OUT OF ORDER AND HEAVY

EXPLODED VIEWS

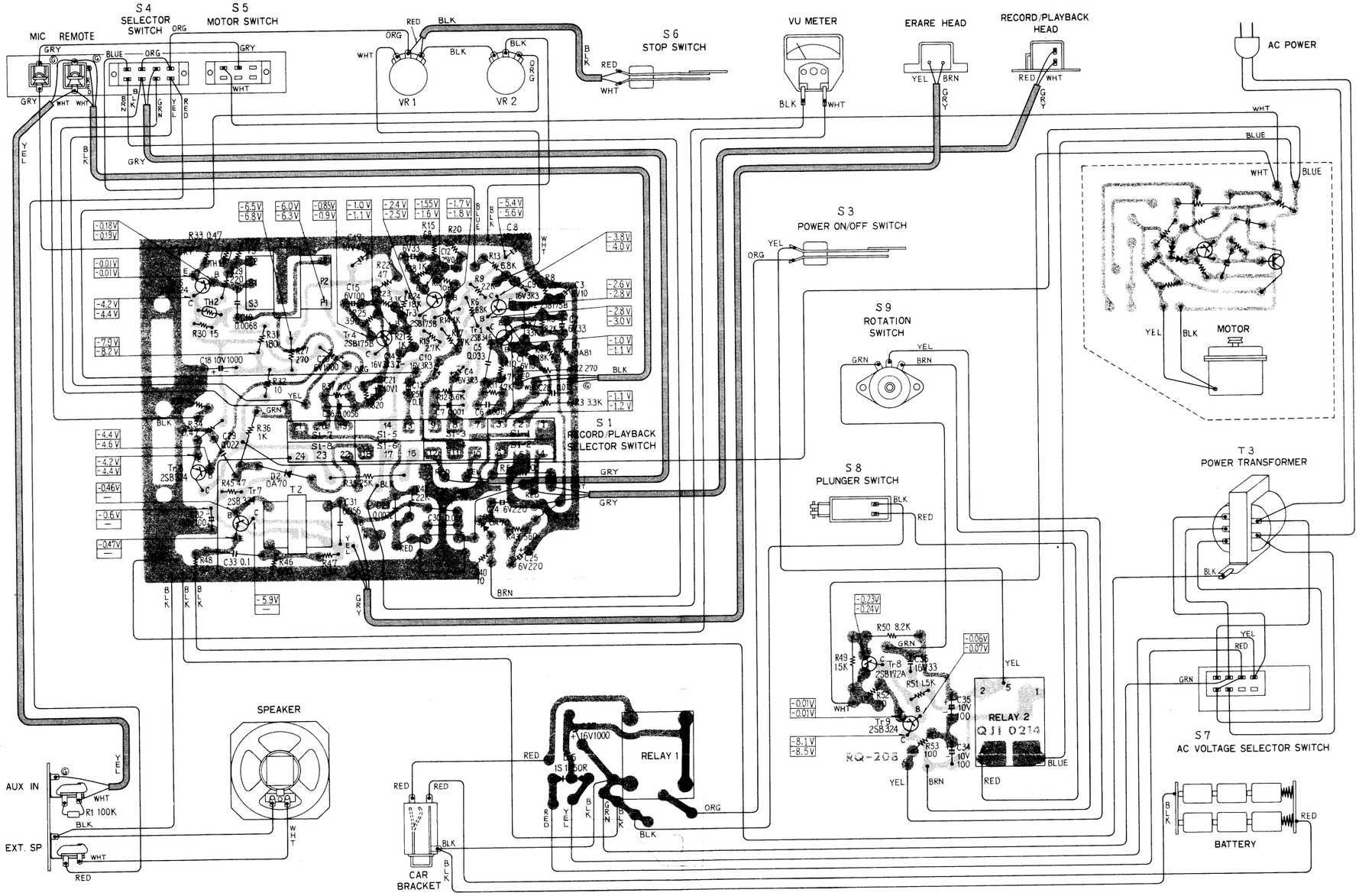



M54
REC
M53
M55
M53
M60
M52
(C)
(D)
(A)
(B)
M85
M84
M83
F F
STOP
REW
M87
M80
※1
M82
M86
M79
M72
M80
M81
M78
M78
M72
M77
M76
M72
M75
(C) (D)
M71
M74
M73
M72
(A)
(B)
M70
M71


※5
※3
M98
M99
M88
M89
M96
M97
M95
M90
M94
M93:1
M93:2
M93:3
※4
※2
M90
M91
M92
M93
M97
M95
M96


M100
M101
M102
M103
M104
M105
M107-1
M106
M107
M101
M105
M108
M123
M112
M109
M110
M111
M115
M113
M114
M115
M116
M117
※7
M97
M126
M118
M119
M120
M121
M122
M108
M125
M124
M128
M123
M97
M97
※6

WIRING CONNECTION DIAGRAM MODEL RQ-208S



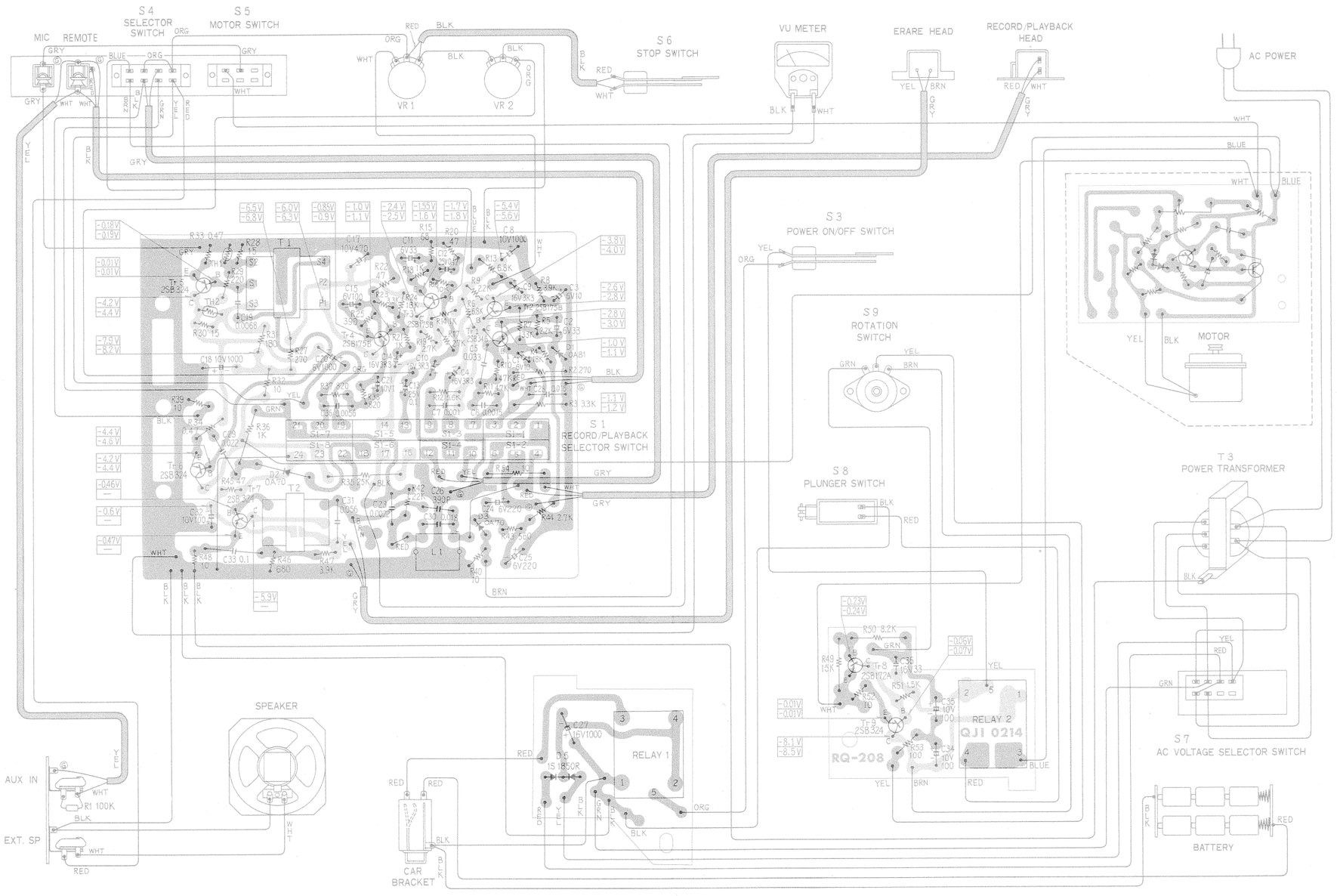
NOTE:
The circuit shown in red on the conductor side is −B circuit.
Values indicated in ▭ are DC to chassis ground with no signal applied.
The upper values should be measured during recording and the lower values during playback.

Consuming Current (no-signal time; VR minimum)

	Overall	Amplifier	Motor
RECORDING	Not more than 120 mA	Not more than 25 mA	Not more than 90 mA
PLAYBACK	Not more than 140 mA	Not more than 40 mA	Not more than 90 mA
FAST FORWARD	Not more than 220 mA		Not more than 120 mA
REWIND	Not more than 220 mA		Not more than 120 mA

BLK ..... BLACK
BLUE ..... BLUE
BRN ..... BROWN
GRN ..... GREEN
GRY ..... GRAY
L. BLUE ... LIGHT BLUE
ORG ..... ORANGE
RED ..... RED
VLT ..... VIOLET
WHT ..... WHITE
YEL ..... YELLOW
© ..... Shield Wire

WIRING CONNECTION DIAGRAM MODEL RQ-208S



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ORG ..... ORANGE
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VLT ..... VIOLET
WHT ..... WHITE
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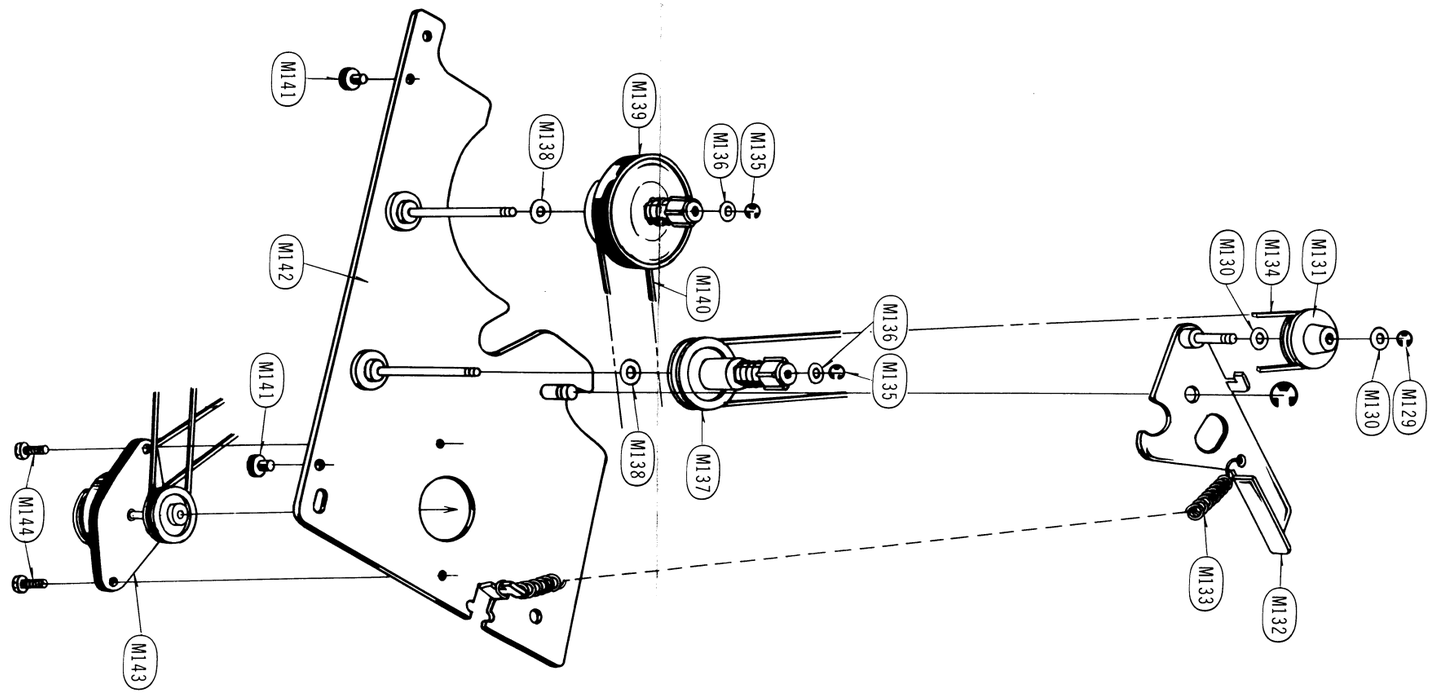
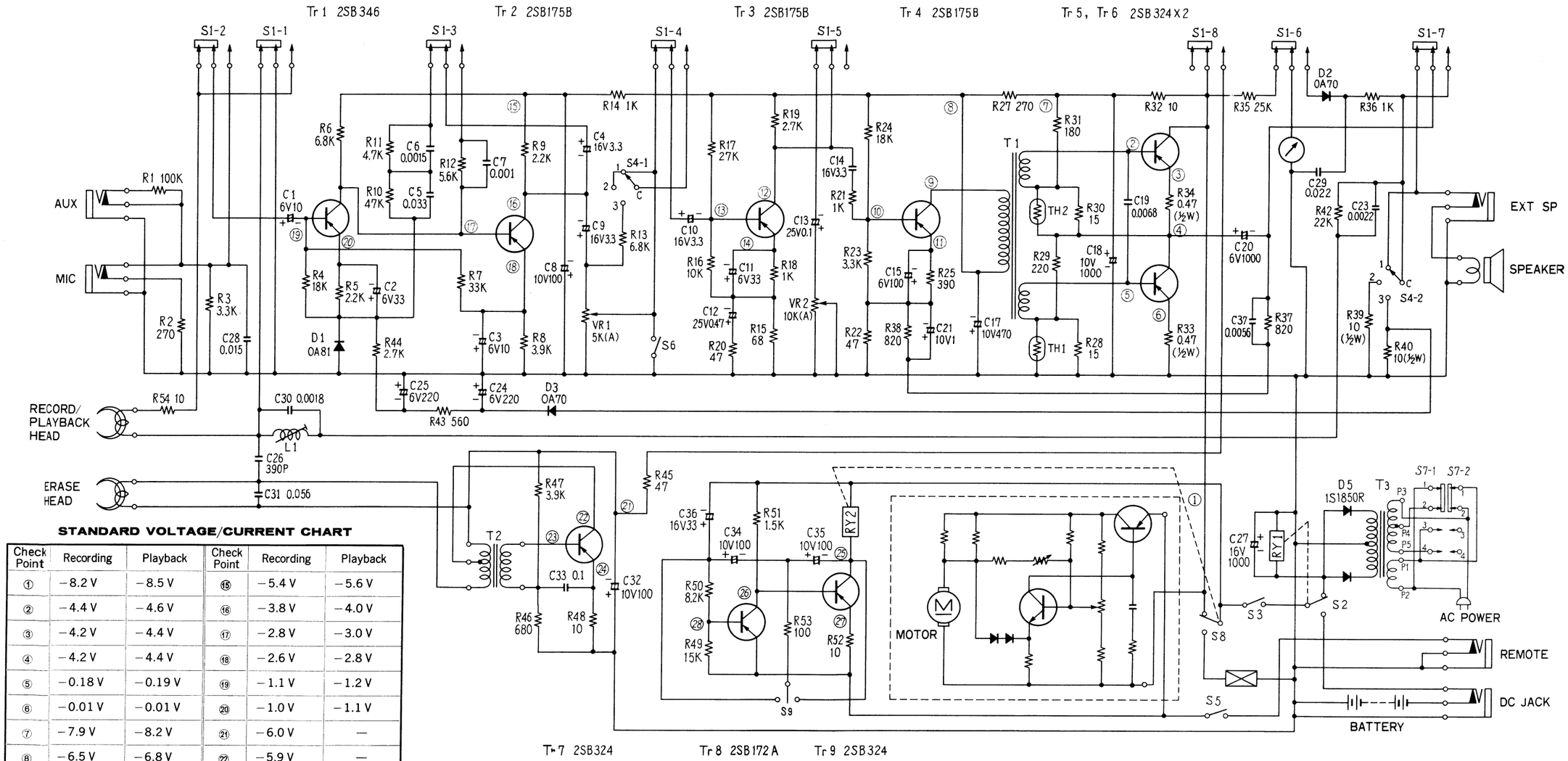
Ⓢ ..... Shield Wire


M141
M139
M138
M136
M135
M142
M140
M136
M135
M141
M130
M134
M131
M130
M129
M138
M137
M144
M133
M132
M143

SCHEMATIC DIAGRAM MODEL RQ-208S



STANDARD VOLTAGE/CURRENT CHART

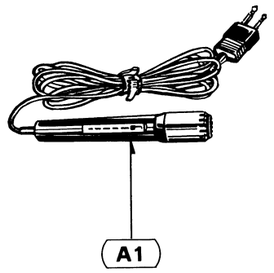
Check Point	Recording	Playback	Check Point	Recording	Playback
①	−8.2 V	−8.5 V	⑮	−5.4 V	−5.6 V
②	−4.4 V	−4.6 V	⑯	−3.8 V	−4.0 V
③	−4.2 V	−4.4 V	⑰	−2.8 V	−3.0 V
④	−4.2 V	−4.4 V	⑱	−2.6 V	−2.8 V
⑤	−0.18 V	−0.19 V	⑲	−1.1 V	−1.2 V
⑥	−0.01 V	−0.01 V	⑳	−1.0 V	−1.1 V
⑦	−7.9 V	−8.2 V	㉑	−6.0 V	—
⑧	−6.5 V	−6.8 V	㉒	−5.9 V	—
⑨	−6.0 V	−6.3 V	㉓	−0.46 V	—
⑩	−1.0 V	−1.1 V	㉔	−0.47 V	—
⑪	−0.85 V	−0.9 V	㉕	−8.1 V	−8.5 V
⑫	−2.4 V	−2.5 V	㉖	−0.06 V	−0.07 V
⑬	−1.7 V	−1.8 V	㉗	−0.01 V	−0.01 V
⑭	−1.55 V	−1.6 V	㉘	−0.23 V	−0.24 V

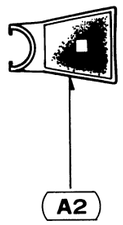
NOTE: All measurements are under no signal conditions with volume at minium position.
Use M-type VTVM for AC voltage measurements and P-type VTVM for DC voltage measurments.

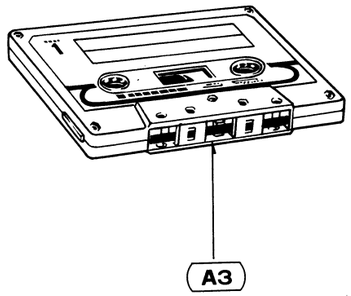
NOTE:

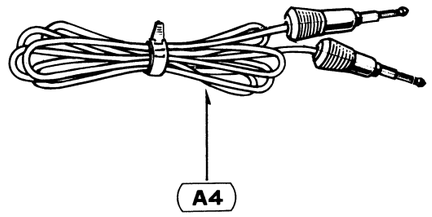
1. S1-1～S1-8 ... Record/Playback Selector Switch (Shown in Playback position).
2. S2 ..... AC/DC Selector Switch (Relay 1).
3. S3 ..... Power ON/OFF Switch (ON in Slide-in position).
4. S4-1, S4-2 ... Selector Switch.
   1.....Sound Monitor, 2.....OFF, 3.....ARC.
5. S5 ..... Motor Switch.
6. S6 ..... Stpo Switch (ON in FF/REW position).
7. S7-1, S7-2 ... AC Voltage Selector Switch (1-2 110V, 2-3 220V, 3-4 240V).
8. S8 ..... Plunger Switch (Relay 2).
9. S9 ..... Rotation Switch.
10. Resistors are 1/4 watt unless specified otherwise.
    K=1,000Ω, M=1,000,000Ω.
11. Capacitors are microfarad (μF) unless specified otherwise.
    P=Micro-microfarads.
12. Encircled numbers (◯) show checkpoints for voltage and current.
    The values are marked in the standard voltage/current chart.

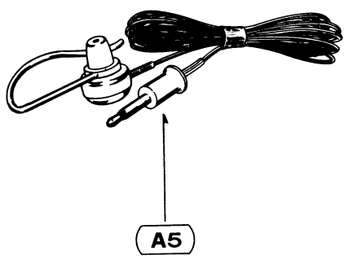
ACCESSORIES

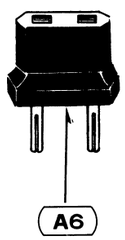


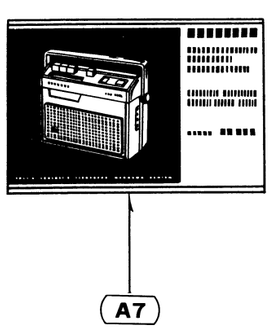




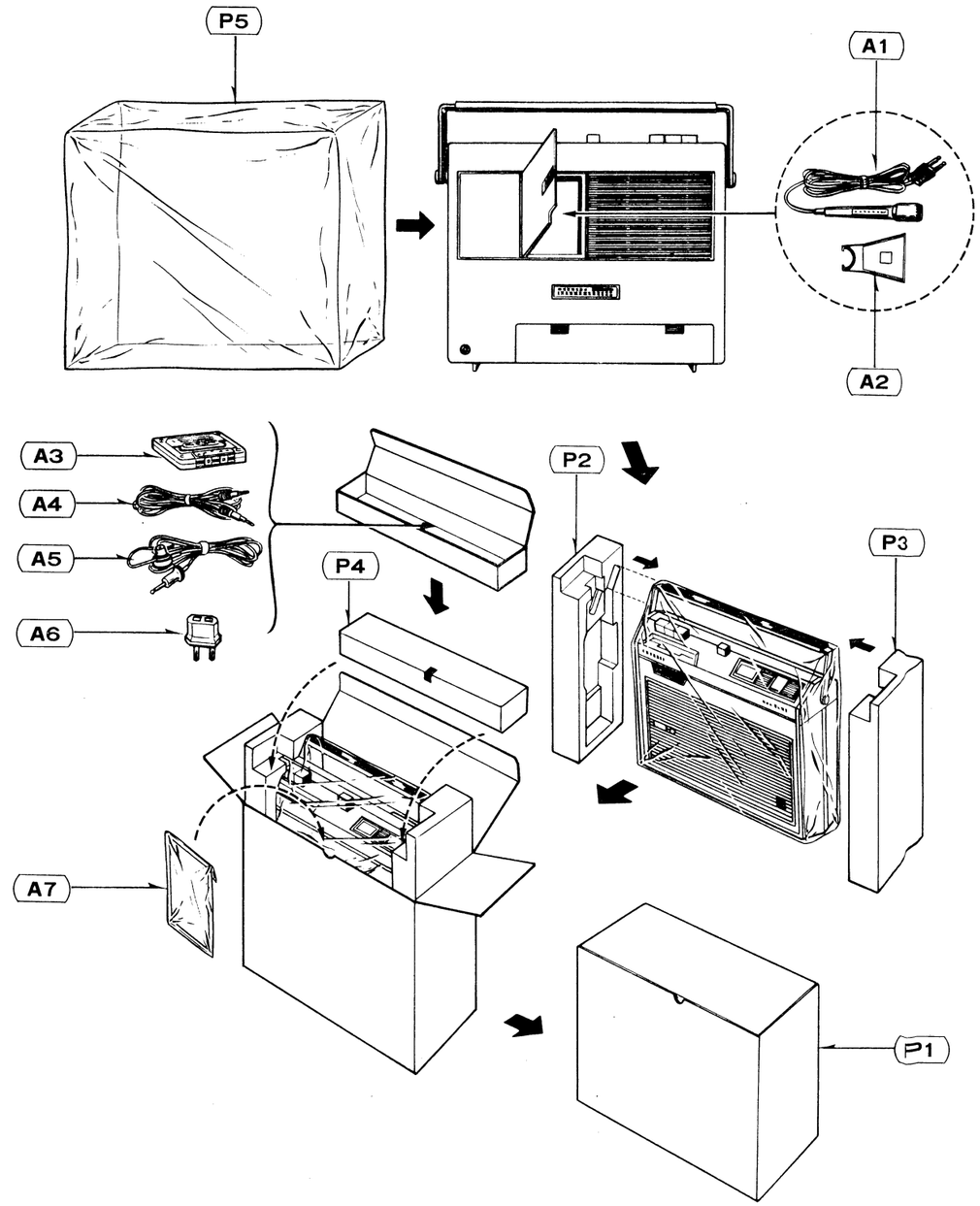








CONPONENT PACKING



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